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ATTITUDE TOWARDS SCHOOL INFRASTRUCTURE IN RURAL AREAS

(April, 2007- March, 2008)

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Debdulal Dutta Roy



PSYCHOLOGY RESEARCH UNIT
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EXECUTIVE SUMMARY

The goal of infrastructure development in primary education is to increase school attendance motivation and to improve academic performance of students. It is assumed that favorable attitude towards school infrastructure quality facilitates the above two. This has been increasingly questioned in recent years. On this backdrop, current study examined attitude towards school infrastructure of students in primary schools and its relation with school effectiveness (school attendance motivation and academic achievement).

Multistage random sampling was followed in collection of data from 572 students of different schools located in 6 high and 6 less literate rural blocks in 6 different districts of West Bengal. Four questionnaires were developed to assess (a) Demographic and socio-economic conditions (b) Attitude towards school infrastructure (c) School attendance motivation and (d) Academic performance of students.

Nine attitudes (cleanliness, safety, comfort, adequacy, exploring, reliability, easiness, equal opportunity, willingness to participate in school activities) towards school infrastructure were initially conceptualized and accordingly one highly reliable (Kuder Richardson reliability = 0.90) 68-item questionnaire was developed. More students (above 70%) felt that school infrastructures were easy to handle, reliable and capable to develop students' inquisitiveness. On the other hand, they felt that infrastructures were not safe and easily accessible. They felt less willingness to participate into sports and cultural programs. Results revealed that attitude varies with differences in religion, socio economic status, districts, literacy rate of blocks, and with available school infrastructure facilities.

Attitude is formed by one's perception of infrastructure. Principal component analysis explored 3 latent perceptions of school infrastructures as basic, supportive and activity based infrastructures. Students usually paid attention to basic (Classroom, blackboard, teaching, book, Mid-day meal), next supportive (Drinking water, Toilet, Friend, Book bank, Health checkup) and finally activity based (TLM, Games, Cultural programs) infrastructures. Perception of above 3 infrastructures also varies with differences in religion, socio economic status, districts, literacy rate of blocks, and with available school infrastructure facilities.

Attitude determines one's motivation to use infrastructure. Results revealed that only 67% of students were motivated to attend the school. This motivation does not vary with one's socioeconomic status contrary to common assumptions. School attendance motivation varies with exposure. Students of high literate blocks and of good school infrastructure motivated more to attend the school than their counterparts. It is noted that all the attitudinal variables towards school infrastructure are related to school attendance motivation. Stepwise regression analysis shows that linear combination of 4 variables (Easiness, Willingness to Participate, Exploring, Safety) predicted changes in school attendance motivation. This suggests that students like infrastructures that can be controlled easily, safe and exploring. Their willingness to participate in different school programs motivated them to attend school. In comparison with other infrastructure types, activity based infrastructure is more preferred to students for school attendance

motivation. Out of three activity-based infrastructures (TLM, Games and Cultural programs), students like games and cultural programs for attending school. TLM satisfaction had very little effect on school attendance motivation. Findings raised question about proper use of TLM in primary school. Basic infrastructures like mid-day meal, textbooks and teaching predicted changes in school attendance motivation. Among supportive infrastructures, friendship, health check up and toilet facilities acted as important motivating factors to attend school.

Though attitude and school infrastructure perception play important roles in school attendance motivation, they failed to show any predictable change in academic performance of students. Even school attendance motivation failed to correlate academic performance.

The study has got a few limitations that should be taken care of before making any such generalization. Some limitations are selection of few rural blocks and few schools. However, the findings revealed importance to assess attitude towards school infrastructure in primary schools. Based on the findings few suggestions can be made so that school attendance motivation could be increased and relation of school infrastructure attitudes with academic performance could be established. Students wanted to come school in order to explore and to apply their potentialities. Possibly, due to this reason, students like activity based infrastructure. Teaching learning materials play important role in exploring and applying human potential. It enhances one's academic performance also. It alone can change total educational climate of school as well as total locality. But it is not used properly. Possibly, due to this reason, it has own lost predictive power in this study. Therefore attention should be paid to appropriate use of TLM.

To sum up, one vicious circle is in process. Attitude towards quality of school infrastructure is formed with the exposure of different school infrastructures. Again availability of school infrastructure depends upon literacy rate and communication system in locality. Favorable attitude towards school infrastructure leads to school attendance motivation that again improves literacy rates of the locality. Success of this circle largely depends upon students' academic performance. It is alarming to note that students' academic performance is not related to both attitude and school attendance motivation revealed in this study.

India lives in its villages. Census of India (2001) shows that approximately 72.22% of the total population of India (1, 027,015,247) lives in the rural areas. In India rural development is considered as the sine qua non of overall development of the national economy. Primary education is considered as key for the poverty alleviation in rural areas.

Primary Education: The Prime Approach

Primary education is the most significant indicator of a country's literacy (ability to read and write a simple statement on his or her everyday life), (UNESCO, 1993). It raises the productivity and earning potential of a population and improves the quality of lives (Psacharopoulos, 1993; World Bank, 1993; Barro, 1991). It is the indicator directly associated with economic development and indirectly with poverty alleviation and population growth. There is enough evidence to show that a high literacy rate, specially in the case of woman, correlates with low birth rate, low infant mortality rate and increase in the rate of life expectancy (10th five-year planning, Planning Commission, Government of India). Education is perhaps the single most important means for individuals to improve personal endowments, capacity building, and to overcome constraints. It alters individual's and even community's collective perceptions, aspirations, goals, as well as the ability and the means to attend those. Amartya Sen summed up the economic and social benefits of education: if education makes a person more efficient in commodity production then this is clearly an enhancement of human capital. This can add to the value of production in the economy and also to the income of the person who has been educated. Primary education advances human security by enhancing human capability, economic opportunity and political participation. It fructifies multiple dimensions of freedom from fear and want, it generates self-confidence, supports orientation towards future, offers coping mechanisms in times of crisis.

Primary education has been given special importance in the constitution of India. In the directive principles of state policy of the constitution of India (Article 45, Page 3) it is clearly written that "The State shall endeavor to provide within a period of ten years from the commencement of the constitution for free and compulsory education for all children until they complete the age of fourteen years." Under the constitution of India, education is the concurrent

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Introduction

If education makes a person more efficient in commodity production then this is clearly an enhancement of human capital. This can add to the value of production in the economy and also to the income of the person who has been educated.

- Amartya Sen

subject, with a sharing of responsibilities (including legislation) between the center (Ministry of Human Resource Development) and states (Departments of Education).

However, the task of providing basic education for all, with concrete plans of action, gained greater momentum only after the national policy of education (NPE), 1986 (Revised in 1992). With the world declaration on education for all (EFA) adopted in Jomtein in 1990, basic education in all its' facets (early child care education, (ECCE), Elementary education, education for Adolescence, Adult education, Gender equality and quality improvement) has been the focus of international attention. These International developments, together with several positive developments within the country, brought the need for recognizing basic education as a fundamental right of every citizen to the center stage. With the launching of the National Policy of Education in 1986, the government initiated a move to start a number of missions. The National Literacy Mission started in 1988, was one such mission. It had the following aims:

- Increased motivation, which is the central issue in literacy;
- Secured participation by creating a positive environment and through mass mobilization;
- Increased the involvement voluntary agencies and enhanced the quality of existing programs with improved techno-pedagogic inputs;
- Launch a mass movement for expanding the Mass Functional Literacy Programme (MFLP), hitherto confined to university, college and secondary/higher secondary schools, to include different sections of society;
- Ensure the availability of quality learning materials, aligned to mission goals;
- Universalise the outreach of literacy learning facilities to all parts of the country by 1990; and
- Establish a Mission Management System for monitoring and for corrective action.

In the 8th five-year plan (1991-1997), priority was given to minimum infrastructures for school education. These are operation blackboard, non-formal education, teacher education, post-literacy, continuing education and vocational education. Several schemes have been launched in the 9th five year plan (1997-2000). Like operation blackboard, non-formal education, teacher education, national program of nutritional support to primary education or the mid-day meal scheme, district primary education program, total literacy

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campaign, community polytechniques, shikhya-karmi project, area-intensive program for educationally backward minorities and integrated education for disabled children, etc. to meet the needs of the educationally disadvantaged and to strengthen the social infrastructure in the educational sector. The 10th five-year plan gave special importance on (2001-) Sarba Sikhya Abhiyan (SSA), Gender Specific Programme, and Mid-Day Meal, Teacher's education development and strengthening of teacher education institutes, professional development of teachers, professional development of practitioners, i.e.; teacher educators, managers and others systematic learner's evaluation, strategy for early childhood care and education, community participation in elementary education and synergetic partnership with the private sector.

Management of schooling has been traditionally controlled by the mainstream state and district administrations. The last two decades have seen the emergence of a number of education-specific support institutions, such as District Primary Education Program (DPEP) and Sarva Shiksha Abhiyan (SSA), State councils of Educational Research and Training (SCERT), State Institutes of Educational Management and Training (SIEMAT), District Institutes of Education and Training (DIET), Block Resource Centers (BRC), Cluster Resource Centre (CRC), and in rural areas village education committees (VEC), as well as an increased involvement of NGOs, that have acted as a counterweight to what is often an overly bureaucratic and hierarchical administration. The last decade or so has also seen the establishment of the Panchayati Raj, or village council, and this body is playing an increasingly important role in education in rural areas across the country.

There are broadly four stages of school education in India: namely, primary (I to V), upper primary (V to VIII), secondary education (SE), and higher secondary education (HSE). The combination of primary and upper primary schooling is termed as elementary education. It is important to note that there is also a programme of pre-school education (for three to six years old), through the department of women and child development (DWCD), GOI through Anganwadi center infrastructure. There are also a few other, Government and Private providers of pre-school and nursery education in rural areas. At the education as well as training and higher education involving universities and under graduate and post-graduate institutions.

Within this educational structure there are 4 basic types of schools:

The last two decades have seen the emergence of a number of education-specific support institutions- DPEP, SSA, SCERT, SIEMAT, DIET, BRC, CRC, and VEC.

1. Government schools, including those run by local bodies;
2. Private schools, aided by Government;
3. Private unaided schools; and
4. Un recognized private schools (the first 3 being recognized by the Government).

87% of the schools in India are in the countries villages. Government statistics and independent surveys have revealed that the Government runs over 90% of the rural schools at elementary level. Current study focused on primary education issues in rural areas.

Elementary Education in Rural India

There is gradual increase in per capita spend on education in rural India. In 1993-94, the average per capita spend on education in rural India was Rs. 128, or 1.5% of total expenditure (total expenditure being Rs. 8,533). By 2001-02, it was Rs. 245 or 2.5% of total spending, measured in constant prices (total expenditure being Rs. 9,800). For the top 5% of rural households, the increase in real expenditure of education has been quite spectacular - from Rs. 575 in 1993-94 to Rs. 1,158 per person per year (in 2001-02). Average expenditure per student pursuing primary education in rural India in 1995-96 besides Dadra & Nagar Haveli, Daman & Diu, Nagaland was 462.1429. States below the average expenditure were Uttar Pradesh, Rajasthan, Tamilnadu, Maharastra, West Bengal, Andhra Pradesh, Bihar, Lakshwadeep, Assam, Orissa, Madhya Pradesh, Gujrat and Karnataka (NSSO, 1998). Primary education in West Bengal is the focus of attention.

Infrastructure: Building block

Infrastructure is recognized by all to be the major bottleneck to development (Rao, 2005). Dr. Manmohon Singh, the Prime Minister of India, recently gave major thrust on infrastructure facilities in education. He asserted " While growth generates wealth, we also need to invest in equitable social and physical infrastructure, catering to the needs of marginalized sections of our society which still need to catch up with the more advanced regions" (PM Reviews Mid term appraisal, 2005). A large number of marginalized sections of our society live in the villages. To harness the socio-economic growth of the villages, paramount importance is to equip our village schools with suitable infrastructures and to assess the attitudes of students towards them. Later is useful

"While growth generates wealth, we also need to invest in equitable social and physical infrastructure, catering to the needs of marginalized sections of our society which still need to catch up with the more advanced regions"

- Dr.Manmohon Singh

in understanding their comfort and difficulties in using the infrastructures.

Infrastructure cannot be separated from the learning environment. They are integral parts of each other (Taylor and Gousie, 1988). School buildings that can adequately provide a good learning environment are essential for student success (USDOE, 2000). School infrastructures are of four types - physical infrastructure (building structure, source of water, facilities of toilet, electricity, class room type), information sharing infrastructure (exhibition, cultural program, sports), knowledge sharing infrastructure (teacher-student ratio, availability of reading and writing accessories, teaching aids, library, computer) and location of schools from main road, health centers and market. In designing school, usually attention was paid to the physical infrastructures. Professionals involved in school design assumed that as long as certain minimum standards for size, acoustics, lighting and temperature were met, a productive environment existed and teaching and learning would proceed normally (Conners, 1982; Cash, 1993; Berner, 1993). School infrastructure is of four types broadly - Physical, knowledge sharing, information sharing and health infrastructure.

Physical Infrastructure: It includes physical facilities established in schools to cater different services to students, teachers and staffs of schools. These are classroom, drinking water, toilet and chalkboard

Classroom: Success in school depends on the extent to which students engage adaptively in classroom learning tasks. A growing body of research indicates that the classroom context plays a significant role. In literatures of educational psychology, association of classroom and school outcomes was studied on the basis of social-cognitive motivation theories mediated by students' motivational beliefs (Patrick, Ryan and Kaplan, 2007;). That is, perceptions of the classroom influence students' belief about themselves and their schoolwork, and these beliefs, in turn, influence the nature and extent of their engagement in academic tasks. However, no studies were noted to examine association between perceived physical features of classroom and school outcome. School buildings that can adequately provide a good learning environment are essential for student success (USDOE, 2000). Professionals involved in school design assumed that as long as certain minimum standards

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for size, acoustics, lighting and temperature were met, a productive environment existed and teaching and learning would proceed normally (Conners, 1982; Cash, 1993; Berner, 1993).

Drinking Water: Ensuring fresh, safe and adequate water for drinking is not only important for students' health but also important for development of high concentration and less tiredness in studies (<http://www.phs.co.uk/waterlogic/1444.html>). Of all the water on Earth, only a small amount is available for us to use. 97.2% of the Earth's water supply is salt water. Only 2.8% is fresh water.

In most of the rural schools, students use ground water through deep tube well. Recent studies noted arsenic contamination in the ground water. There are many clinical manifestations but the most commonly observed symptoms of chronic arsenic poisoning are conjunctivitis, melanosis and hyperkeratosis. In severe cases, gangrene in the limbs and malignant neoplasm have also been observed. School of environmental studies of Jadavpur University noted six arsenic prone districts in West Bengal. Six districts are South 24-Parganas, North 24-Parganas, Nadia, Bardhaman, Murshidabad and Maldah (Das et. al., 1996). "We are planning to reduce people's dependence on sub-soil groundwater and help them to switch to treated surface water. As part of our efforts to combat arsenic contamination, we have plans to supply surface water to most towns in the state during the 11th Five-Year Plan," said urban development minister Asok Bhattacharya. The authorities are preparing a master plan that spell out how these towns could be connected through pipelines supplying surface water (Chakraborti, 2007). Poor quality of drinking water leads to gastrointestinal disorder among children (Kyle and Moe, 2003). There are three reasons for the growing world-wide concern - perceived inadequacy of water for increased food production, the rapid depletion of groundwater and pollution of rivers and water bodies in developing countries, and fears of increasing conflict and competition over sharing water.

Toilet: A toilet is a plumbing fixture and disposal system primarily intended for the disposal of the bodily wastes: urine and fecal matter. The word "toilet" can be used to refer to the fixture itself or to the room containing the fixture, especially in British English. As per census 2001, only 36.4

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% of the total population of the country had latrines within their households and in rural areas it is 21.9%. Only 7.1% households have latrines with water closet. And only 34.2% households had drainage facilities for the waste-water disposal in rural areas (Gol, 1994). This suggests poor toilet system in the rural schools. Toilet system facilitates scholastic performance in schools. Like drinking water, clean, safe, secrecy, spacious toilets are necessary requirement for any school. Toilet with poor quality in schools inhibit students to use it resulting constipation (painful or difficult passing of stool) accompanied by other symptoms, including gas, nausea, rectal pressure and abdominal pain, cramping or distension. Clean toilet helps students to be free from microbial contamination (http://www.cleansSeats.com/toilet_seats/view/article-7.html). Spacious toilet helps students to move around the inside of toilet safely as per needs.

Toilets of poor quality in schools inhibit students to use it resulting constipation (painful or difficult passing of stool) accompanied by other symptoms.

Knowledge Sharing: Knowledge sharing facilities are used in schools to disseminate knowledge to the students. These are chalkboard or blackboard, books, teaching learning materials, teachers and classmates.

Blackboard: With rapid change in technology, the concept of blackboard has been changed. Now it is considered as web-based course-management system designed to allow students and faculty to participate in classes delivered online or use online materials and activities to complement face-to-face teaching. In the present context, blackboard is a writing board through which teacher provides students course materials in the classroom. Usually, it is made of wood. By the introduction of operation blackboard scheme in 1987, many schools are moving from movable blackboard to non-movable. Later is made of cement and is least accident-prone. It is minimum essential facility to all primary schools in the country. About 9 percent primary schools do not have access to blackboard following the DISE data of 2004 (Arun C Mehta, 2004). Small size board inhibits teacher to write in big resulting difficulty for students to follow teacher's writing. Placement of blackboard is important so that students can look at the blackboard without any difficulty.

Books: Books impart knowledge, foster imagination and self-understanding and contribute to the child's mental growth by stimulating sensory organs. Research has repeatedly shown that children who have no access to books

before they go to school are severely disadvantaged and have trouble catching up with other children (Radebe, 2001). Elley (1996) in a study reported that there are many potential benefits in a good book, provided it grasps and holds student's interest. Not only do students expand their language by reading widely, they also learn much about other times and places, stimulate their imagination, gain insights into human nature, are able to follow their specific interests and hobbies, enjoy an escape from unpleasant realities. He concluded that, once children learn to appreciate books, they would read more often and improve their skills. Children in primary education feel pain in eye muscles during reading the books with small fonts for long time; hence font should be big and adequate to read them.

Learning by experience is the useful technique to understand similarity and dissimilarity among different things or events and to understand concepts by self exploration

Teaching Learning Materials: Learning by experience is the useful technique to understand similarity and dissimilarity among different things or events and to understand concepts by self-exploration. Teaching learning materials of Sarva Shiksha Abhiyan are the useful tools for experiential learning. Materials can be divided into two – materials for active teaching and passive teaching. Active teaching materials include flash card, pocket board, work card, making picture or letter using matchstick etc. And passive teaching materials are chart, globe, map etc. In case of former, students participate actively by eye hand manipulation to understand different concepts and they become passive in case of later. For example, students during reading RAT cannot get scope to manipulate letter position in different manner to make some other words like TAR or ART. Sarva Shiksha Abhiyan (SSA) provides every teacher with a yearly grant of Rs. 500 for developing teaching learning materials. Attitude (interest in preparing model, availability of materials in school, preference to study by preparing models) towards learning through teaching learning materials is the concern of current study.

Teachers: It is well established that the quality of children's relationships with their teachers in the early grades has important implications for children's concurrent and future academic and behavioral adjustment (Howes, Hamilton, & Matheson, 1994; Hughes, Cavell, & Jackson, 1999, Pianta, Steinberg, & Rollins, 1995). Children who have a negative relationship with their teacher, especially those who experience verbal abuse by the teacher, are likely to miss out on important learning opportunities and are at risk for an

increase in behaviour problems, at least in the short term (Brendgen, Wanner, & Vitaro, 2006). In one study, Dutta Roy (1994) noted three dominant personality factors among the experienced teachers – Emotional stability, faithfulness and independence. Students feel at ease to ask questions to responsive and trustworthy teachers. Students avoid private tuition when they find expertise, reliability and responsibility in teachers of the schools.

Friends: Like teacher support, students need support from classmates in terms of feeling cared about in academic learning (Johnson et al., 1983). Attitude towards peers has significant impact on academic confidence of the students. Patrick, Ryan and Kaplan (2007) found positive relation between perceived peer group support and academic efficacy.

Information Sharing: This includes facilities to disseminate school activities to the neighboring areas or to larger societies. These are games or sports, cultural program,

Games and Sports: It includes a set of exercise that is planned, structured and repetitive, and undertaken for the purpose of improving or maintaining physical fitness. Physical fitness includes several attributes such as muscular strength, flexibility, balance, agility, power, and speed and co ordination (Caspersen, Powell and Christenson, 1985). Games and sports prevent obesity (Goran, Reynolds and Lindquist, 1999). Besides physical fitness, it helps in students' psychosocial well-being. Involvement in school games and sports develop attitude or enjoyment of physical activity, motivation to exercise, perceived benefits of exercise, health beliefs and self-efficacy within children (Kohl and Hobbes, 1998).

Cultural Program: Cultural program like drama in school is a practical artistic subject. It ranges from children's structured play, through classroom improvisations and performances of specially devised materials to performances of Shakespeare (Hornbrook, 1991). Repeated exposure to cultural programs helps students to understand many issues that are not in the syllabus, to develop social adaptability and to understand inner potentiality.

The idea that music makes you smarter has received considerable attention from scholars and the media. The

Students feel at ease to ask questions to responsive and trustworthy teachers. Students avoid private tuition when they find expertiseness, reliability and responsibility in teachers of the schools.

present report is the first to test this hypothesis directly with random assignment of a large sample of children (N=144) to two different types of music lessons (keyboard or voice) or to control groups that received drama lessons or no lessons. IQ was measured before and after the lessons. Compared with children in the control groups, children in the music groups exhibited greater increases in full-scale IQ. The effect was relatively small, but it generalized across IQ subtests, index scores, and a standardized measure of academic achievement. Unexpectedly, children in the drama group exhibited substantial pre- to posttest improvements in adaptive social behavior that were not evident in the music groups.

It is a part and parcel of the primary education. It helps students to keep physically, mentally and socially healthy. It is the function of school to provide students adequate opportunity to use available game materials irrespective of religion, caste, creed and socio economic status. SSA provides grant to the schools to purchase materials for games and sports.

Health Infrastructure: Health infrastructures are meant for health caring activities in schools. These are Mid-day meal and health check up by medical doctors.

Mid-Day Meal: According to the policies of SSA, all students of government schools are eligible to get midday meals in schools. The midday meal program was employed by the SSA to motivate students to attend school and control the drop out rate among rural students. Keeping in mind the financial conditions of the rural people, introduction of midday meal was aimed to attract students to the basic necessities of regular life and indirectly motivate students using provision of midday meal as an incentive.

Health Check-up: The health checkup program aims at providing comprehensive physical examination and medical care to the school going children of the government school students. The main objectives of the School health programme are: (a) to reduce the morbidity among school children through school health services; (b) to prepare children for adopting healthy life styles (health practices) through health education. It is easy and useful to instill the desired health behaviour through the syllabus, class lessons, group discussions, education, competition etc regarding

It is the function of school to provide students adequate opportunity to use available game materials irrespective of religion, caste, creed and socio economic status.

different aspects of health education in the formative age group of 5-15 years. During 1996-97 the special school check-up programme formulated on a national level by the Government of India. About availability of school infrastructures in the rural areas of West Bengal, DISE statistical data and report of Mukherjee and Mandal (2005) are notable.

School infrastructures in West Bengal

The eradication of illiteracy was one of the main programs of the Govt. of West Bengal. Following the census, 2001, literacy rate of West Bengal (69.22%) was above 65.4%. Female literacy (60.22%) was lower than male literacy (77.58%). Statistical information about school infrastructures is mainly based on DISE data. In 2005-2006, DISE studied 59223 schools covering 49559 of all the districts (n=20) of West Bengal. State elementary education report card by DISE most of the government managed primary schools (N=42706, 87%) are located in the rural areas and most of the rural students (N=6211720, 86%) are enrolled there. There are very few private schools in the rural areas (N=88). The primary schools are made of pucca structure (63%) and partially pucca structure (16%). Schools have various facilities, namely; common toilet (66.9%), girls' toilet only (21.8%), drinking water facility (81.5%). Teachers are trained (70.9%). Irrespective of rural and urban differences, pupil teacher ratio is less (1:48) than 2004-2005 (1:50). Similarly, student classroom ratio decreased to 52 from 57 in 2004-2005. Both boys (50%) and girls (50%) are getting relatively more textbooks. Very few students get school uniform (8%). And uniforms are mainly for girls (97%). There were very few studies about availability of school infrastructures in West Bengal.

Mukherjee and Mandal (2005) conducted systematic studies in Cooch behar and Bardhaman Districts to understand school infrastructures. They did not find completely pucca structure of building. For most schools, side walls of the structure might have been pucca but the roof was either of tin or partially asbestos or of totally asbestos. Drinking water sources were tube well constructed by Gram Panchayet. Schools were lacking adequate urinal facility and electricity connection. Number of classrooms available for instruction purpose was in average 3. Partition wall in between classrooms for most school was made of bamboo sheet, thus criss-crossed between/among classes. Particularly when one class is not held because of teacher's

Most of the government managed primary schools are located in the rural areas. 86% of students of primary education enrolled in rural schools.

absence, the neighbouring classes could not be taken or if taken with lot of trouble. Overall teacher student ratio was 1:53. During teachers' absence or other pre-occupations, students of all classes are accommodated by removing the partition walls in between classes and the teaching was given by one teacher. Students sat either on the floors whether earthen or pucca or they made own arrangement. They brought own mattress, gunny bag/ plastic sheet for sitting purpose.

Primary school infrastructures in Rural areas of West Bengal

Following the statistical report of the Elementary Education in Rural India, 2005-06, there were 42793 primary schools (87% of 49894 schools of all classes) in West Bengal.

Most of the schools (95.53%) were established before 1994. 62% (less than 9.18% of national average) school buildings were made of pucca structure. 41.55 % classrooms (63.79%) were good condition. Average number of classrooms is 2.7 (higher than national average 2.7). Single classroom (18.87%) was higher than national average (14.13%). Student classroom ratio (54.36) was higher than national average. Approximately, there were 6 teachers. 92.50% (national average = 72.58%) schools received school development grant. Out of them, 8.23% schools failed to utilize the grant. Very small number of schools (23.73%) had boundary wall. 83.03% of schools had drinking water facility. Schools had common toilets (68.04%). Toilets only for girls were available in 21.66% (national average =27.09%) of schools. Most of the schools (95.6%, national average=84.48%) had no electricity. All most all schools had blackboard (99.7%, national average=7.46%). 33.15% (National average= 45.45%) of schools had play ground.

85.25% (national average=67.02%) schools got TLM grant. 57.77% schools (National average=43.65%) had book banks. 21.80% (National average=51.13%) schools had medical checkup.

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checkup.

Attitude towards infrastructure

Above studies mainly focused on availability of school infrastructures and very little attention to the attitudes towards them. Study about attitude towards infrastructure is important for understanding to what extent the infrastructure appears as conducive to academic activities in school. Conducive school infrastructure maximizes student participation and taps to the fullest extent possible young

people's potential for learning. Besides, it provides insight about specific infrastructure requirements in school. Purpose of the present study was to examine attitude towards school infrastructures in rural areas.

Attitude

Throughout the history of psychology, the notion of attitude has played an essential role in the explanation of behaviour. For example, a search of PsychINFO with the keyword "Attitude" revealed more than 12000 articles published from 1992 to 2002. Gordon Allport (1935), an early pioneer in attitude research, characterized the concept of attitude as distinctive and indispensable to social psychology. Allport (1984) defined attitude as a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related.

Assessing attitude is complex as it is unobservable hypothetical construct. It must be inferred from measurable responses indicating positive or negative evaluations of the attitudinal object. It may be inferred from three basic components. (Breckler, 1984). All three are related, and more they are consistent with each other the more stable is the attitude.

The *cognitive component* consists of the person's thought process, perceptions and beliefs, and evaluations about the attitude object. For example, students may think that school provides adequate space to sit in the classroom.

The *affective component* gives an emotional or feeling aspect to the attitude which, results in an object being liked or disliked. In the example of adequate space in above, student may feel warmth or liking for the school.

The *behavioural component* refers to the tendency to act towards the object in a consistent and characteristic way. Again, following the above example, student may want to attend the class regularly.

There are five basic characteristics of attitude. These are:

Valence: It is the degree of positive or negative feeling about an attitude object that predicts what attitude scales normally measure.

Centrality: It is the extent to which an attitude is a part of a person's self-concept and reflects the individual's identity.

Interrelatedness: It is the extent to which an attitude is

Attitude as a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects and situations with which it is related.

- Allport

related to a person's other attitudes.

Stability: It is simply an attitude's resistance to change.

Salience: It is a person's conscious awareness of the attitude.

Attitude towards school infrastructures

Each infrastructure has set of qualities. By experiencing these qualities, students form different attitudes towards infrastructure. For example, students assume that school is safe through experience of school building's capability to protect students from internal and external environmental threats. Student's attitude towards infrastructures can be inferred from 3 kinds of responses as cognitive, affective and conative. Cognitive response is based on student's perception. For example, school toilet is used by all students. Affective response is very much psychological in nature. It includes student's emotional tones. For example, School toilet is adequate for privacy. Conative includes motor functions or actual behaviour. For example, I go to school toilet if needed.

Attitude towards infrastructures is assumed to be multidimensional in nature. Again their multidimensionality is assumed to vary with respect to various types of infrastructures. The multidimensional attitude towards infrastructure has been studied in the industrial (Dutta Roy, 1989, 1991, 1992), hospital (Dutta Roy, 1997) and bank settings (Mukhopadhyay, 2005) but no such studies were made in the school settings. Therefore, current study will examine relationship among the multi facets of the attitudes towards school infrastructures by developing a questionnaire to assess them.

Current study focused on nine attitudes towards infrastructure as cleanliness, safety, comfort, adequacy, exploring, reliable, easiness, equal opportunity and willingness to participate in school activities. The assumptions behind each attitudinal variable are given below:

Cleanliness: Cleanliness is the absence of dirt, including dust, stains, bad smells and clutter. Purpose of cleanliness includes is to make school free from offensive odor, dirt and contamination of germs and of diseases. Classroom becomes dirty due to unused papers, wastage materials of tiffin-box, dusts coming through windows and doors etc. Good cleaning habit among students is important for classroom cleanliness. Brooming and washing are common means to make

Each infrastructure has set of qualities.

By experiencing these qualities, students form different attitudes towards infrastructure. That results one's motivation to use it.

Current study focused on nine attitudes towards infrastructure as cleanliness, safety, comfort, adequacy, exploring, reliable, easiness, equal opportunity and willingness to participate in school activities.

Brooming and washing are common means to make classroom clean. Clean classroom and toilet are healthy for the students. It protects students from diseases and germs. Students before starting class usually clean the classrooms with brooms. In some schools, sweepers are available for cleaning the classroom and toilets. Clean classroom, toilet, mid day meal, medical check up is assumed to affect student's motivation to attend school.

Like classroom, fresh and clean water is important in school. Clean water means absence of toxic substance. Presence of toxicity can be understood through foul smell, turbidity, unwanted color etc. The main source of water is rainfall. In West Bengal, the state is endowed with large ground water sources. It is tapped by means of heavy and medium duty tube wells. Schools are allocated with such tube wells. Following Human Development Report of West Bengal, 2004, 83.2% of habitations are under rural water management.

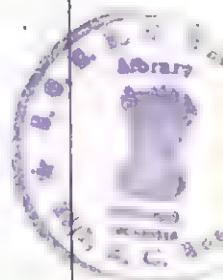
Safety: Safety is the state of being "safe" (from French *sauf*), the condition of being protected against any failure, damage, accident, errors or harms. Some of the safety systems in school are pucca building, covered electrical wares, safe drinking water, no slippery in toilet, wall-fixed blackboard, clean food and careful health check up. School maintains several safety systems to protect students like keeping emergency phone numbers, first aid kit, fire extinguishing cylinders.

Comfort: Comfort refers to feeling of pleasurable ease, a state of being relaxed and feeling of no pain. Feeling of comfort in learning at classroom and in uses of different infrastructures makes students at ease and relaxed.

Easiness: Like comfort, easiness plays important role in forming attitude towards school infrastructures. Easiness refers to posing no difficulty. Answering or asking questions to teachers with fear, difficulty to learn lessons, to take teacher's note or to follow teaching learning materials cause feeling of uneasiness in students.

Adequacy: Adequacy refers to feeling of sufficiency to satisfy a requirement or to meet a need. Adequate sitting position, illumination in classroom, drinking water, privacy in toilet use make students motivated towards school.

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school.*



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Exploring: It refers to systematic searching, examining or investigating. Students through learning process in classroom tend to explore the surroundings. Teachers, books, teaching learning materials play critical role in development of exploring attitude.

Reliability: It refers to dependability or consistency. Reliability on teachers, friends and textbooks develop interpersonal trust and good teacher-student interaction. It motivates students to attend the school regularly.

Equal opportunity: School infrastructure should be easily accessible to all the students. There should not be any prejudice or discrimination based on race, color, age, gender, national origin, religion, mental or physical disability in participation of school sports, cultural program, accessing books and in getting mid-day meal.

Willingness to participate in school activities: If there would be equal opportunity for access of infrastructures, students will be interested to participate in sports, cultural programs, mid-day meal and health check up program. They will be willing to attend the school regularly.

Objectives:

To examine the attitude pattern of primary students towards school infrastructure, school attendance motivation and academic achievement.

1. To examine attitude towards school infrastructure;
2. To examine relationship between attitude towards school infrastructure and school effectiveness. School effectiveness is measured in terms of school attendance motivation and academic achievement of students.

Objectives:

*To examine
attitude towards
school
infrastructure.*

*To examine
relationship
between attitude
towards school
infrastructure
quality and
school
effectiveness.*

Attitude towards school infrastructure quality varies with exposures of infrastructures. Rural people living far away from the cities and town get little exposure of modern infrastructures. Again, attitude varies with locally available infrastructure quality, literacy level, demographic and socio-economic conditions. With this assumption specific criteria are maintained to select district, blocks, schools and participants. This chapter highlights specific criteria and characteristics of sample districts, blocks, schools and participants. Secondary data are used to describe characteristics of districts and blocks in terms of literacy level collected through secondary data. One report card was administered to the school authority for assessing availability of infrastructures in school. This is discussed in this chapter. Participants' characteristics are discussed in terms of the data collected through questionnaires.

Selection of Districts

Six districts Howrah, North 24 Pgn(s), South 24 Pgn(s), Hooghly, Bankura, Maldah (Table 2.1) were selected following four criteria:

- Concentration of rural blocks;
- Availability of local transport facilities;
- Local administrative support;
- Proximity to Kolkata.

Average literacy level for rural areas of six districts is 65.02% (Table 2.1). Out of them, the literacy level is less in Maldah (47.8%) and in Bankura (62%). The female literacy level is also comparatively poor (less than average 54.95%) in these two districts. Again, it is less than the total literacy level of rural and urban of the selected districts (Mean=68.8).

Table 2.1

Distribution of Literacy Rate Across Six Districts Based on 2001 Census

Districts	Total Literacy			Rural Literacy		
	Male	Female	Total	Male	Female	Total
Howrah	83.2	70.1	77.0	80.7	64.5	72.8
North 24 Pgn(s)	83.9	71.7	78.1	76.7	61.0	69.1
South 24 Pgn(s)	79.2	59.0	69.4	77.9	56.1	67.4
Hooghly	82.6	67.2	75.1	79.7	62.1	71.0
Bankura	76.8	49.4	63.4	75.8	47.6	62.0
Maldaha	58.8	41.3	50.3	56.6	38.4	47.8

Of all the above districts, rural population is high in Maldha (92.7%), Bankura (92.6%) and in South 24 pgs (84.3%). Relatively urban population is high in North 24pgs (54.3%), Howrah (50.4%) and Hooghly (33.5%). Likewise, more no. of rural primary schools managed by the Govt. are in Bankura (96%), Maldah (95%) and in South 24 Pgs. (93%). And there are 86%, 73% and 63% rural primary schools in Hooghly, Howrah and N.24 Pgs. respectively. Student enrolment varies across districts. In Bankura (1:90), Hooghly(1:75) and Howrah (1:65), schools cater more students in rural

areas. In Maldah (1:43), South 24pgs.(1:55) and in N.24 Pgs.(1:59), schools cater relatively less no. of students. Following DISE report of 2005-06, Development grant is higher in South 24pgs. (95.2%), Bankura (93.8%), Maldah (93.2%) and in Hooghly (89.9%) than North 24 Pgs. (69.5%), Howrah (82.5%). But TLM grant is higher in South 24pgs. (93.8%), Bankura (92.5%), Maldah (92.3%), Hooghly (83.5%) than Howrah (79.9%) and North 24 pgs. (67%).

Selection of Rural blocks

Like selection of districts, 12 rural blocks (Table 2.2) were selected from the above six districts based on following criteria:

- Literacy rate of the rural blocks. From each district the highest and the lowest literate block is selected;
- At least 75% of the population is involved in agriculture;
- Availability of local transport facilities;
- Availability of administrative support in emergency;

Distribution of literacy level across blocks are given in Tables 2.2

Table 2.2
Literacy Level by Blocks Based on 2001 Census

District	Block	Literacy		
		Total	Male	Female
North 24 Pgn(s)	Amdanga	71.4	77.9	64.3
	Sandeshkhali-I	58.5	70.1	46.1
Howrah	Uluberia-I	68.6	76.4	60.6
	Shyampur-II	75.4	84.3	66.3
Bankura	Gangajal Ghati	60.6	75.7	44.8
	Jaypur	66.9	78.4	54.8
Maldah	Chanchol-II	44.5	51.3	37.4
	Kaliachak-I	54.3	61.6	46.6
South 24 Pgn(s)	Bhangar	65.6	72.9	57.8
	Canning-II	52.4	63.7	40.4
Hooghly	Polba-Dadpur	65.9	74.2	57.3
	Chanditala-I	75.7	82.5	69.3

Source: GI Based Thematic Maps

In the current study, at least 60 % participants were drawn from Joypur (14%), Shyampur (12%), Chanchol (12%), Uluberia (11%), Amdanga (10%) and Polba (10%). Blocks (Table 2.3).

Table 2.3
Frequency Distribution of Students by Blocks and by Districts

District	Block	n	District Total	Percentage
North 24 Pgn(s)	Amdanga	59		10
	Sandeshkhali-I	14	73	2
Howrah	Uluberia-I	61		11
	Shyampur-II	70	131	12
Bankura	Gangajal Ghati	16		3
	Jaypur	80	96	14
Maldah	Chanchol-II	49		12
	Kaliachak-I	66	115	9
South 24 Pgn(s)	Bhangar	22		4
	Canning-II	31	53	5
Hooghly	Polba-Dadpur	58		10
	Chanditala-I	46	104	8
Total			572	

To study main effect of block level literacy rate, all the blocks were classified into more (Amdanga, Shyampur II, Joypur, Kaliachak I, Chanditala I, Bhangar) and less literates (Uluberia I, Gangajal Ghati, Chanchol II, Canning II, Polba Dadpur, Sandeshkhali I) based on literacy level of Census data 2001. From each district one block is in the category of high and another one block is in the category of low literate group. Average total literacy level for high literate block is 66.75% and low literate block is 56.43%. Average male and female literacy difference for high literate block is 14.57% and for low literate block is 18.3%.

2.3. Selection of schools

20 primary government schools were selected from 12 rural blocks in 6 districts of West Bengal (Table 2.4).

In school selection, attention was paid to availability of students with mixed community and easy accessibility of schools for collection of data.

Table 2.4
Frequency Distribution of Students by Schools

Dist	Block	School Name	n
North 24 pgs	Amdanga	Khelia F P School	32
		Uludanga Sadhanpur Junior Basic School	27
		Bhatidah: Bhatidaha Mullickpara F P	
Howrah	Sandeshkhali-I	School	14
	Uluberia-I	Kaijuri Shibtala Primary School	36
		Mahespur Ferryghat Primary School	25
	Shyampur-II	Bania Special Cader Primary School	31
		Dehimondalghat Board Primary School	39
Bankura	Gangajal Ghati	Amarkanjan Junior Basic School	16
	Jaypur	Arsole Board Primary School	40
		Moynapur Board Primary School	40
Maldah	Chanchal-II	Siddheswari Prathamik Bidyalaya	54
		Chanchol Rani Dakshayani Primary School	12
	Kaliachak-I	Mothabari Junior Basic School	29
		Bagichapur Tantipara Prathamik Bidyalaya	20
South 24 pgs	Bhangar	Jagulgachhi Junior Basic School	22
	Canning-II	Jibantala F. P School	31
Hooghly	Polba-Dadpur	Polba Junior Basic School	30
		Polba G. S. F. P School	28
	Chanditala- I	Masat North Primary School	24
		Banamalipur Primary School	22
All			572

School infrastructures

During collection of data, besides observation and interview with teachers, a school report card was administered to the Head of the Institution to understand infrastructure facilities of school.

Area

50% of the schools under study were established before independence of India. Usually, local educated and non-educated people to develop culture of education in the neighbouring areas donated the land. In average, school occupied 23.68 katha land with a SD of 20.29. Market (Mean=2.68 km, SD=4.27 km) and block office (Mean=3.74

50% of the schools under study were established before independence of India

Tube well rather tap water is the main source of drinking water.

km, SD=3.80 km) are more than 2 kms. away from the school on an average but the main road with local transport service (rickshaw, Jeep , small car etc.) is near (Mean=1.10 km, SD= 1.91 km). Out of the total area, few schools (39%) had own playground. Flower and vegetable garden were not found resulting difficulty in garden based teaching system.

Water source

Tube well rather tap water is the main source of drinking water. Few schools (16%) had no tube wells. Tube wells of few schools require major repairing. In most of the schools, local people use tube wells. Only 5% of the schools use tap water.

Toilets

Except one school, all schools had toilets. Many schools had no toilet for girls (76%). Students and teachers used both open (27%) and shaded toilets (50%). Toilets were not clean as most of the schools had no sweepers. The average no. of toilets in each school was 4.

Windows and doors

Classrooms of many schools had 3 windows and 1 door in average. Windows were wide as a result some schools did not require artificial illumination, but for some schools windows were blocked by the houses of local people. Students in these schools find difficulty to write on.

Electricity

Some schools arranged own meter for electricity. Only 56% of the schools had electricity. Some schools arranged only one bulb of 40 watts per classroom.

Enrolled students

Few students out of total students of schools studied in class IV. Though few schools had over loaded students. In one school 100 students were accommodated in one classroom. Following the obtained data of school report card, the average no. of students in the primary schools were 207, among which mean enrolment of students in class four was 56 with SD=27.87. During visit, in average 29 students with SD 9.76 were present.

Teacher qualification

Most of the teachers possessed Higher Secondary degree (51%) and few possessed graduate (25%) and school final

Many schools had no toilet for girls (76%).

but for some schools windows were blocked by the houses of local people

Some schools arranged only one bulb of 40 watts per classroom.

During visit, in average 29 students with SD 9.76 were present.

(19%) degrees. Teaching in local language is important in primary school education. Therefore presence of para-teachers is important. Very few schools had para teachers (6%). Comparing the overall student teacher distribution, the student teacher ratio was 34:1, and the student classroom ratio was 40:1.

Teaching learning materials

Teaching learning materials (TLM) are most useful instruments in concept formation and cognitive skill development. It is advisable to design TLM by the students under the guidance of teachers. Classroom teaching will be based on TLM. Regarding use of TLM, pocket board, map (94%), chart (89%), models (72%) were mostly used. Few schools used flash cards (67%) and work cards (44%). Most of the schools prepared teaching learning materials through school teachers or through professional workers. Some schools bought materials from Kolkata or from nearby cities.

Book banks

Book banks help students and teachers in acquiring different kinds of knowledge. Most of the schools (77%) had book banks. Usually, the Head or school authority managed it. In some schools, due to security reasons, school authority keeps books in his house.

Mid-day meal

Mid-day meal system was available in all schools. Some schools provided rice, dal, vegetable curry and boiled eggs. Local women of self-help group under village education committee were engaged in preparing meals in separate room. Most of the schools arranged one storeroom to keep groceries. Some schools used own office room to keep groceries.

Health check-up

Medical team visit is common practice for primary school. Only 50% of the schools had regular health-check up facilities. Health check up includes testing height, weight, eye and major physical ailments.

Selection of Participants

Students were asked to participate voluntarily in this study. Some criteria were followed in selection of participants as (a) ability to read and write in Bengali and (b) appeared not as retarded in intelligence to the teachers. 260 boys and 308 girls, overall 572 students participated in this study. One 24-item

The student teacher ratio was 34:1, and the student classroom ratio was 40:1.

Most of the schools prepared teaching learning materials through school teachers or through professional workers. Some schools bought materials from Kolkata or from nearby cities.

Most of the schools (77%) had book banks

Most of the schools arranged one storeroom to keep groceries. Some schools used own office room to keep groceries.

Only 50% of the schools had regular health-check up facilities

Students were confused to fill up the question about identity of caste (SC, ST,

schedule (Appendix) was administered to them for understanding their age, caste, religion, family occupation, family type, housing conditions etc.

OBC and General category).

Sample characteristics

All the sample students could not write all the information required in the schedule. This was specially in case of writing caste, religion and family income. Below is the short description of sample characteristics as obtained from the data.

Age: Except few students ($n=29$), most of them were in class IV ($n=529$). Students usually join in class I at the age of 5 or 6 years. Due to this reason, it is noted that the mean age of the current sample was 9.54 years with $SD=1.12$. Enrolment in older age (12-15 years) was found among very few students ($n=28$, i.e., 4.9%).

Caste: During school selection, attention was paid to select school having students of mixed community. Students were confused to fill up the question about identity of caste (SC, ST, OBC and General category). Possibly, due to this reason, 462 students failed to report their caste identity.

Religion: 176 Muslims and 366 Hindus were participated. Students ($n=32$) who did not report their religion are excluded from this analysis.

Family type: Rapid socio-economic change causes changes in restructuring the family in rural areas. It was found that the number of students belonging to nuclear family ($n=285$, 52.29%) was slightly higher than students who belonged to a joint family culture ($n=260$, 47.71%).

Family members: To account for the number of members in a family, it was found that most of the students had not more than 5 members in their family ($n=298$, 53.21%). The rest of the students had more than 5 members.

Most of the students had less than 5 members in their family

No. of rooms : Majority of the students had at most three rooms in their family ($n=387$, 70.88%), a few others had ($n=159$, 29.12%) more than three rooms at home.

It is noted that most of the students possessed own land ($n=299$, 54.46%).

Family occupation: In selection of rural blocks, attention was paid to the areas where in predominant occupation is agriculture. It is noted that most of the students possessed own land ($n=299$, 54.46%). 15.05 % students reported that their

parents were landless farmers and 10.67% reported that their parents were marginal farmers. A very small size of students reported that their parents were day labourers (15.81%), businessmen (27.62%), and service men (7.43%).

Study guide: A considerable number of students studied on his or her own (n=125, 22.28%) at home. Those who took guidance mostly chose tutors (n=228, 40.64%) as their study guide at home. Between parents, students usually chose their father (n=121, 21.57%) than mother (n=80, 14.26%) as their study guide at home.

Meals: A considerable number of students (n=204, 36.23%) ate only twice or less per day. Most of the students (n=278, 49.38%) reported to have three meals per day. Though it was found that there were a few students (n=81, 14.39%) who ate four times or more per day.

School distance: Access to school is now-a-days not very difficult due to establishment of more schools in the rural areas. 93.23% of students (n=523) reported that their schools were at less than 1 km distance from their residence. Correlated with this finding, walking is the prevalent mode of communication for most of the students (n=543, 95.94%).

Electricity at home: Rural electricity system is a major issue now-a-days. It is found that most of the students had electricity (either rented meter or own meter) (n=316, 56.53%). Some students (n=48, 0.09%) had lok-deep facility at home. A considerable number of students (n=173, 30.94%) used kerosene and a very few number of students (n=22, 0.04%) had no illumination at home.

Toilet facilities: Like rural electrification, development of scientific toilet is a common issue of the Govt. A large number of students had scientific toilets without flush (n=280, 50.45%). Some had unscientific toilets (n=147, 26.49%). A small number of students had no toilet facilities at home; they used fields as toilets (n=128, 23.06%).

Drinking water: To search for the drinking water sources of the samples, it was found that a very few number of people (n=36, 6.42%) still use river, pond, or well as a source of drinking water. A small number of students used tube well (n=168, 29.95%), and most of the students used (n=357) tap water as their water source. Among which, n=219 students

Those who took guidance, mostly chose tutors (n=228, 40.64%) as their study guide at home

Most of the students (n=278, 49.38%) reported to have three meals per day

A large number of students had scientific toilets without flush (n=280, 50.45%)

(39.04%) used road-side taps and only 138 students (24.60%) had taps at home.

Garbage disposal: To find a picture of the garbage disposal habit of the samples, it was found that most of the students (n=292, 52.33%) disposed garbage just outside home. A large number of samples (n=241, 43.19%) used places distant from home (Road side, field). Only a very few (n=25, 4.48%) used garbage carts to dispose their daily waste products.

Most of the students (n=292, 52.33%) disposed garbage just outside home

SUMMARY

Students studying in grade IV at primary schools in rural areas of West Bengal are the population of current study. This study is time bound therefore; few districts, blocks and schools were selected based on specific criteria. Availability of different infrastructures of schools in general in terms of area, water source, toilets, windows and doors, electricity, enrolment, teachers, TLM, book bank, mid-day meal, health check-up are highlighted. 572 students participated in this study voluntarily. Their profile is also discussed. Profile covers age, caste, religion, family type, family size, no. of rooms, family occupation, study guide at home, meals taken, distance from school, electricity, toilet facilities, drinking water, garbage disposal. It is noted that there is a similarity between basic infrastructure facilities in schools and at home. This is especially in drinking water source, toilets and electricity. Based on their socio-economic condition, socio economic status scores for each individual student were computed. This is discussed in chapter 3.

3

Socio-Economic Status of Participants

It is noted that most of the students possessed moderate level of S-E-S scores

Socio-economic condition of family helps in getting access into different kinds of infrastructures. Exposure facilitates judging to make discrimination among infrastructures based on quality. It gives a frame within student about infrastructures and it's requirements. For example, change in toilet from unscientific to scientific system develops new attributes about toilet infrastructures. On this assumption, socio-economic status of students is considered as major determining variable in this study. One questionnaire was developed to assess differences in socio-economic status of students. Socio-economic condition of rural areas is very complex and multifaceted. So, in designing the questionnaire, attention was paid to availability of infrastructure facilities, which are available at home and at school. For example, toilet, sources of drinking water, electricity are available in both. The questionnaire includes 9 variables; (i) frequency of taking meals (ii) study guidance at home (iii) occupation of guardians (iv) types of house roofs (v) type of house walls (vi) sources of drinking water at home (vii) types of illumination at home (viii) types of toilets at home and (ix) number of rooms. All the variables were coded and scored.

Table 3.1 represents Socio-Economic Status of students across variables under study. As expected, the table depicts the picture of rural population.

Family occupation of most students was agriculture (51.77%). Their house walls were brick built (55.35%) but roofs were made of Hay, Bamboo, Taali and Asbestos (74.99%). 51.73% of students reported less than 3 rooms. Though some students used field (23.06%) and unscientific toilets (26.49%), most of them used scientific toilets (52.25%). Tube well and roadside tap water are common sources of drinking water (68.99%).

Total score of socio-economic status was determined by adding scores of all the 9 variables (Table 3.1). Table 3.2 shows that each Socio-economic variable is significantly and positively correlated with the total score. It is noted that most of the students possessed moderate S-E-S scores (Mean = 21.08, SD=4.41). Maximum score is 35.

Figures 3.1 and 3.2 show that most of the students possessed higher than median S-E-S level (Median=21.00). It is also noted that there is no outlier in the distribution. Whisker at the lower end is longer than that of upper end suggesting high within group variability among the students who possessed score lower than 18.00. At least 35% of students possessed scores lower than average level (Table 3.3).

Students of Maldah district possessed highest scores and those of North 24-pgs possessed lowest scores.

Mean differences

Besides districts [$F(5,566)=4.85$, $p=0.0002$, NS], no significant mean differences in SES scores across gender [$F(1,566)=1.99$, $p=0.22$, NS], religion [$F(1,540)=0.02$, $p=0.88$, NS], blocks [$F(1,570)=0.009$, $p=0.92$, NS]. In district wise differences, Students of Maldah district possessed highest scores and those of North 24-pgs possessed lowest score in SES (Figure 3.3).

SUMMARY

In considering role of socio-economic status on changes in attitude towards school infrastructure quality, socio-economic status scoring categories are developed to make individual differences in SES scores. It is noted that SES scores do not vary with gender, religion and blocks. It differs with districts only.

Table 3.1
Socioeconomic Status Scoring Categories

Variables	Response Category	Scores	n	%*
Frequency of taking meals	Once	1	22	3.91
	Twice	2	182	32.33
	Thrice	3	278	49.38
	Four or more than four times	4	81	14.39
	Non response		9	
Guidance at home	Self	1	125	22.08
	Parents	2	201	35.51
	Tutor	3	228	40.28
	Others	4	12	2.12
	Non response		6	
Occupation of guardians	Landless+Marginal farmers	1	135	23.85
	Agricultural farmers	2	158	27.92
	Labourer	3	87	15.37
	Business	4	145	25.62
	Service	5	41	7.24
	Non response		6	
Types of house roofs	Hay+Bamboo	1	68	12.27
	Taali+Asbestos	2	347	62.64
	Brick	3	139	25.09
	Non response		18	
Types of house walls	Clay+Bamboo	1	222	40.96
	Asbestos	2	20	3.69
	Brick	3	300	55.35
	Non response		30	
Sources of drinking water	River+Pond+Well	1	36	6.42
	Tube Well	2	168	29.95
	Tap Water (Road Side)	3	219	39.04
	Tap Water (Home)	4	138	24.60
	Non response		11	
Types of illumination at home	No Light+ Kerosin	1	195	34.88
	Lok-Deep	2	48	8.59
	Electricity (Rented)	3	44	7.87
	Electricity (Own Meter)	4	272	48.66
	Non response		13	
Types of toilets at home	Field	1	128	23.06
	Unscientific Toilet	2	147	26.49
	Scientific Toilet (Without Flash)	3	260	46.85
	Scientific Toilet (With Flash)	4	20	3.60
	Non response		17	

Number of rooms	One	107	19.49
	Two	2	177 32.24
	Three	3	103 18.76
	Four or more than four	4	162 29.51
	Non response		23

* Non-response categories were not accounted in determining percentages.

Table 3.2
Correlation Coefficients between Socio-Economic Variables
and Total S-E-S score (N=572)

Socioeconomic Variables	Total Socioeconomic Status Scores
Frequency of Taking Meals	0.32**
Guidance at Home	0.33**
Occupation at Home	0.44**
Types of House Roof	0.57**
Types of House Walls	0.55**
Sources of Drinking Water	0.51**
Types of Illumination at Home	0.63**
Types of Toilets at Home	0.54**
Number of Rooms	0.49**

Note: All correlation coefficients were significant at 0.01 level.

Table 3.3
Distribution of Socio-Economic Status Scores

Class Interval	Frequency	%
5-9	5	1%
10-14	41	7%
15-19	154	27%
20-24	237	42%
25-29	125	22%
30-34	7	1%
All	569*	

* 4 scores are missing

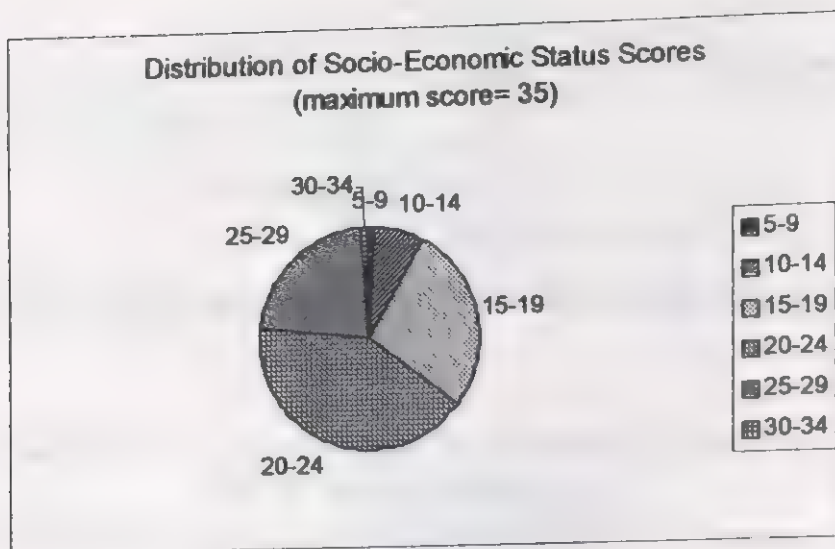


Figure 3.1 Distribution of Socio-Economic Status Scores (maximum score= 35)

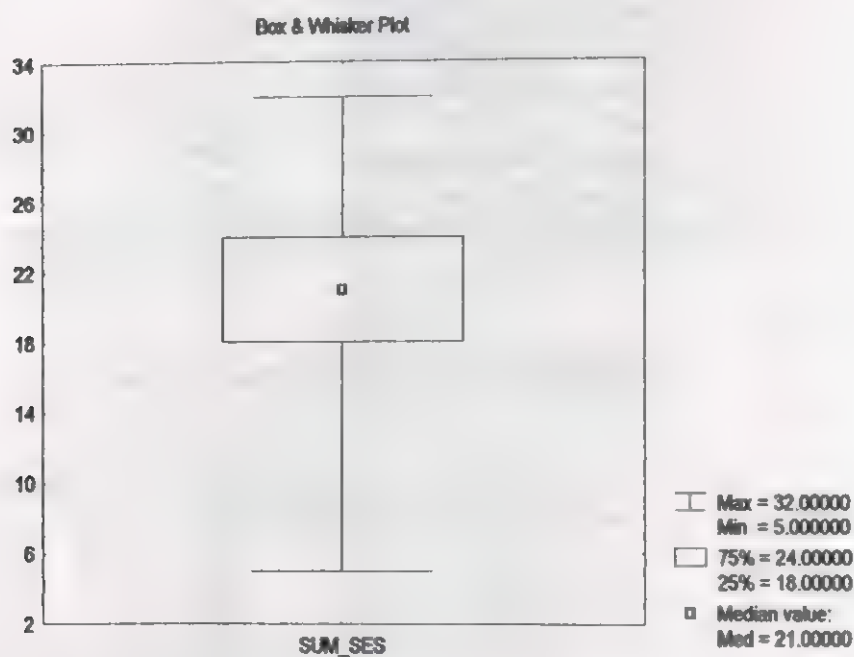


Figure 3.2 Box and Whisker Plot of S-E-S Data

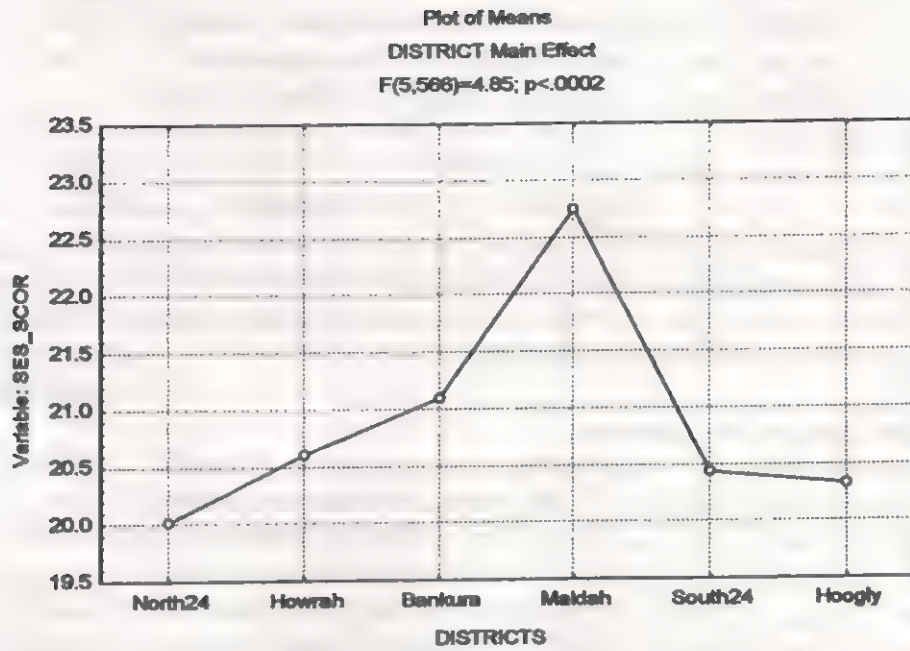


Figure 3.3 District wise Differences in SES Scores

*It was revised
four times.*

*Revision was
needed to select
most simple, non-
ambiguous,
discriminating
items*

Primary data were collected to examine individual differences in attitudes towards school infrastructure quality through questionnaire developed for the study. Section 1 discusses methods to develop questionnaire to assess attitude towards school infrastructure and section 2 discusses different patterns of attitudes towards school infrastructure across different cross sections of students.

Section -1

In order to assess differential pattern of attitudes towards school infrastructure among the students, a questionnaire was developed. It was revised four times. Revision was needed to select most simple, non-ambiguous, discriminating items.

4.1 Questionnaire development

First revision: Initially, it was 5-point rating scale with 66 items. Items were arranged randomly. During administration to students of grade IV and V of Hooghly district, subject's difficulty to understand extent of differences in the mental plane among different rating categories ranged from strongly disagree to strongly agree was noted. Therefore, the responses were scored categorically (merging strongly agree and agree to 'yes', merging disagree and strongly disagree to 'no' categories). Item-analysis revealed subject's difficulty to understand some of the adjectives and negative items. Students felt ease to answer in statements with interrogative form rather with affirmative.

Second revision: In the second revision, a questionnaire of 86 items with binary response categories (Yes and No responses) was designed. In framing the items, attention was paid to use statements in question form so that students could respond easily. Negative statements were not used in this revision. And use of adjectives was controlled as much as possible. 86 items were distributed among 13 infrastructures, namely, attitude towards the school in general, classroom, blackboard, drinking water, toilet, games, cultural programs, mid-day meal, study, teaching, friend, routine, and examination. The 13 infrastructures were selected on the basis of school visits, interview with the teachers of Basic Training College and review of School Report Card provided by District Information System for Education (DISE). This helped to skip some items that were not applicable in specific school. Again, through these 86 items eight attitudinal dimensions of the students were measured toward school infrastructure. These are safety, cleanliness, adequacy, openness, comfort, responsiveness, creativity and empathy. The questionnaire was administered and it was found that students could understand the statements better

it was found that students could understand the statements better than the previous form. But item analysis revealed a poor content validity. This might be due to inclusion of some items, which measured one's awareness rather than attitude towards school infrastructures.

Final: Finally, a questionnaire of 68 items with yes and no response category (Appendix) was developed to assess 9 attitudinal dimensions (cleanliness, safety, comfort, adequacy, exploring, reliability, easiness, equal opportunity, willingness to participate in school activities) of attitude towards school infrastructure quality. Considering categorical response patterns, rational equivalence technique was used to assess reliability of the final questionnaire.

4.1.1 Reliability

Reliability refers to the consistency of scores obtained by the same persons when reexamined with the same test on different occasions, or with different sets of equivalent items, or under other variable examining conditions (Anastasi, 1990). The internal reliability is a measure of the variance in the test referred as the 'equivalence' or internal consistency of a test. A test is said to be reliable if there is little variance that is specific to certain items (Cortina, 1993). It indicates the extent to which individual differences in test scores are attributable to "true" differences in the characteristics under consideration and the extent to which they are attributable to chance errors. Reliability of a test is given by the proportion of true variance resulting from the presence of specific situation under consideration and error variance resulting from the presence of some factors irrelevant to the present situation.

To assess reliability, data were collected from 175 students of 8 schools of 5 rural blocks (Gangajal Ghati, Jaypur, Chanchol 2, Bhangar, Polba) of 4 districts (Bankura, Maldah, South 24 Pgn(s), Hooghly). Of four principal techniques for assessment of reliability, rational equivalence was used here, as the responses were categorical or non-metric.

The formula is given below:

$$r_{tt} = (n/(n-1)) \times ((\sigma^2_t - \sum pq) / \sigma^2_t)$$

in which,

r_{tt} = reliability coefficient of the whole test

n = number of items

σ_t = the SD of the total scores

p = proportion of the group giving 'yes' responses

q = (1- p) = the proportion of the group giving 'no' responses

Finally, a questionnaire of 68 items with yes and no response category (Appendix) was developed to assess 9 attitudinal dimensions

It is noted that reliability coefficient for the total scale was 0.90, indicating that 90% of the observed score variance is true variance, i.e., due to 'true' individual differences among samples, where by only 10% of the observed-score is attributable to error variance.

Table 4.1 shows attitudinal dimension wise reliability coefficients. Reliability coefficients of safety ($r_{tt}=0.68$), easiness ($r_{tt}=0.68$), equal opportunity ($r_{tt}=0.63$) were relatively higher than cleanliness ($r_{tt}=0.66$), adequacy ($r_{tt}=0.58$), reliability ($r_{tt}=0.50$), willingness to participate ($r_{tt}=0.50$), exploring ($r_{tt}=0.47$), and comfort ($r_{tt}=0.42$). Reliability varies with number of items and item discrimination power. Attitudinal dimensions were measured by few number of items and few number of items had poor discriminating power, possibly due to this reason, total score reliability is higher than the dimension wise reliability coefficients. One can assess attitude towards infrastructure with whole test and with sub tests. Subtests score provides content related meaning so in the study, dimension wise score is given importance. One must be cautious in interpreting dimension wise score as some items have very poor discriminating value. These items are 2.1 of cleanliness, 1.2 and 3.4 of comfort, 1.4, 1.5, 4.1, 6.1 of adequacy, 7.1, 10.1 of exploring, 7.2 of reliability, 5.4, and 8.3 of easiness. Except these 12 items, 56 items had good discriminative validity.

4.1.2 Content Validity

It involves systematic examination of the test or questionnaire content to determine whether it covers a representative sample of the behavior domain to be measured. Content validity is built into a test from the outset through the choice of appropriate items. The preparation of items is preceded by a thorough and systematic examination of relevant materials as well as by consultation with subject-matter experts. On the basis of such information test specifications are to be drawn up. These specifications show the content areas or topics to be covered, processes to be tested and the relative importance of individual topics and processes. Common statistics used for content validity coefficient are item-total correlation coefficient, and t-statistics or chi-square test between the item statistics of high and low groups with respect to total scores. Content validity in this study was examined in terms of item-total correlation. Point bi-serial correlation coefficient was computed to determine item-total correlations.

Nine attitudes, namely, cleanliness, safety, comfort, adequacy, exploring, reliability, easiness, equal opportunity, willingness to participate in school activities were examined in 9

*It is noted that
reliability coefficient
for the total scale
was 0.90.*

subscales of the questionnaire. Table 4.2 shows that item – total correlation coefficients (Range= 0.11 to 0.78, Mean = 0.50, SD = 0.15) for all the items were significant at 0.01 level, excepting item no. 7.8, suggesting good content validity of the questionnaire. It is further noted from Table 3.4 that content validity for the subscales of equal opportunity (Mean coefficients=0.62), cleanliness (Mean coefficients=0.60), safety (Mean coefficients=0.58), reliability (Mean coefficients=0.57), easiness (Mean coefficients=0.56), comfort (Mean coefficients=0.55), was higher than willingness to participate (Mean coefficients=0.43), adequacy (Mean coefficients=0.43), and exploring (Mean coefficients=0.38) subscales. However, all the items were positively and significantly correlated with corresponding subscales. Means, SDs and average item-total correlation coefficients for each attitudinal variable is described in Table 4.3.

Section – 2

This section aims at describing attitude towards school infrastructure of students across different demographic groups, namely, gender, religion, S-E-S, districts and blocks. More than 70% (Table 4.4) of total students felt school infrastructures were at ease (Mean=0.83, SD= 0.19), adequate (Mean=0.77, SD=0.13), comfortable (Mean=0.73, SD=0.21), reliable (Mean=0.75, SD=0.21), and exploring (Mean=0.75, SD=0.14). Less than 70% of students felt that infrastructures were not safe (Mean=0.65, SD=0.26). In school they got little equal opportunity (Mean=0.66, SD=0.27) and they felt less willingness to participate in different cultural and sports programs (Mean=0.69, SD=0.17). Figure 4.2 shows very long whisker in the distribution of scores in cleaning, safety, reliability, and equal opportunity. This suggests poor shaping of attitude among students who possessed scores below 25th percentile. Table 4.5 shows that except gender wise difference, attitudes towards school infrastructures differed across different groups.

Gender

Boys and girls did not differ in their attitudes towards school infrastructure quality in a significant manner [Wilks' Lambda = 0.97, Rao's R (9,558)=1.76, $p<0.07$].

Religion

In comparison with students in Hindu religion (Table 4.6), most of the Muslim students reported that they felt less safety (Mean=0.59, SD=0.28), and comfort (Mean=0.68, SD=0.23), in the school infrastructure. More number of Hindu students

Content validity in this study was examined in terms of item-total correlation

all the items were positively and significantly correlated with corresponding subscales.

More than 70% of total students felt school infrastructures were at ease, adequate comfortable, reliable and exploring.

Boys and girls did not differ in their attitudes

reported that school infrastructures were less exploring (Mean=0.74, SD=0.14). In assessing interaction effect of gender and religion, no significant mean difference was found [Wilks' Lambda = 0.92, Rao's R (9,532) = 5.06, $p < 0.00$].

Socioeconomic status

Initially, quartile analysis on S-E-S score was computed to classify students who were very low in S-E-S (score < 18) and were very high in S-E-S (score > 24). Both groups significantly [Wilk's Lambda = 0.90, Rao's R (9,242) = 3.03, $P < 0.002$] differed in attitudes. Table 4.6 shows means and SDs of each group.

Districts

Attitude towards school infrastructure varies with districts significantly (Wilks' Lambda = 0.35, Rao's R (45,2499) = 14.44, $p < 0.00$). In district wise comparison, students of North 24 pgs and Maldah districts possessed lower scores in safety, comfort and willingness to participate attitudes. On the other hand, students of Howrah and Bankura districts possessed high scores on safety, comfort, adequacy and willingness to participate. Table 4.7, 4.8 and Figure 4.2 present districts with high and low scores in attitude towards school infrastructures.

Differences between more and less literate blocks

Table 4.9 shows significant mean differences in attitudes towards infrastructure quality of schools by block level literacy [Wilks' Lambda = 0.90, Rao's R (9,562) = 6.49, $p < 0.00$]. The students of more literate blocks perceived school infrastructures as safe, comfortable, adequate, exploring and ease. And they felt more willingness to participate in school programs.

Differences between schools with good and poor infrastructures facilities

Following the DISE (2006-2007) data the infrastructure facilities of the 18 schools were ranked (Table 4.10) depending on 8 indices, like, No. of school text books : Total enrolment, No. of school uniform : No. of students (girls), No. of students : Total teachers, No. of students : Total no. of classrooms, No. of repeaters : Total enrolment, No. of students passed with > 60% : Students passed, No. of classrooms in good condition : Total no. of classrooms, No. of blackboards : Total no. of classrooms.

According to the median rank of all the 8 indices of each school only the three top-ranked schools and three lowest ranked schools were taken for final analysis. As the three top-ranked schools demonstrated higher infrastructure facilities they are considered as good infrastructure schools (GIS) and the three

Muslim students reported that they felt less safety, and comfort, in the school infrastructure. More number of Hindu students reported that school infrastructures were less exploring.

Students of North 24 pgs and Maldah districts possessed lower scores in safety, comfort and willingness to participate

This suggests role of infrastructure availability in formation of positive attitude towards school

lowest-ranked schools exhibited lower infrastructure facilities they are termed as poor infrastructure schools (PIS). Thus overall data of 163 samples (n of GIS=85, n of PIS=78) were taken into account in order to find if there was any difference in the attitudinal dimensions between the students of GIS and PIS. (Tables 4.11, 4.12). Both groups significantly [Wilks' Lambda=0.77, Rao's R (9,153)=5.13, $p<0.00$] differed in their attitudes towards school infrastructure quality. Students of Good Infrastructure Facilities evaluated their school as more clean, comfortable, adequate, exploring, and reliable. And they felt more equal opportunity and willingness to participate in school programs. This suggests role of infrastructure availability in formation of positive attitude towards school infrastructure. Furthermore, stepwise discriminant function analysis was made to assess predictive power of the questionnaire to make correct classification between high and low school infrastructure groups. The analysis extracted five most important attitudes namely, reliability, equal opportunity, comfort, safety, cleanliness in predicting differences between good and poor infrastructure schools (Table 4.13).

4.2.1 Canonical discriminant function

Tables 4.14, 4.15 shows that 47.2% of the variance (squared canonical correlation $\times 100$) of the Discriminant function scores can be explained by group differences. The canonical correlation coefficient (.687) is highly significant (Wilk's Lambda= .53, χ^2 (9)= 101.41, $p<.000$). This suggests that out of 9, the set of 5 attitudinal variables differ significantly between the good and poor infrastructure schools. Among 5 most important variables reliability (structure coefficients=0.64), equal opportunity (structure coefficients=0.53), exploring (structure coefficients=0.41) are more important than willingness to participate (structure coefficients=0.39) and comfort (structure coefficients=0.33), in discriminating good and poor infrastructure schools (Table 4.16).

4.2.2 Prediction Accuracy

The overall classification accuracy is 82.8% (Table 4.17), the classification accuracy percentage for of the discriminant function for the actual groups- good infrastructure =88.2, poor infrastructure =76.9 respectively. This suggests high predictive capacity of the Discriminant function obtained.

4.2.3 Mean differences

The classification accuracy provides the percentage of the Discriminant function but it fails to determine the test of

infrastructure.

Among 5 most important variables reliability, equal opportunity, exploring are more important than willingness to participate and comfort in discriminating good and poor infrastructure schools.

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4.2.3 Mean differences

The classification accuracy provides the percentage of the Discriminant function but it fails to determine the test of

significance between the groups. Therefore, t-test was computed to determine mean differences (Table 4.18) in Discriminant functions of classified good and poor infrastructure schools. It is noted that Discriminant function of poor infrastructure schools possessed lower score (Mean=-1.30, SD=0.93) than good infrastructure (Mean=-0.98, SD=0.64) schools (Figure 1) 0 (t₍₁₆₁₎=18.51, p<0.00) suggesting the classified groups are significantly different.

4.2.4 Interaction effects

Tables 4.20 show that religion was interacting with districts, and blocks (Table 4.21) but not with SES (Table 4.19) in making significant mean differences in attitude towards school infrastructure.

SUMMARY

Questionnaire to assess attitude towards school infrastructure quality is a reliable and valid instrument. It has good discriminative power in classifying students of schools with good and poor infrastructures. Results revealed that attitude varies with differences in religion, socio economic status, blocks, districts and school infrastructures. No significant mean difference was found in case of gender wise difference. For policy formulation, sometimes it becomes difficult to follow intangible variables like attitude, therefore attention is paid to tangible or specific infrastructure wise variations.

Table 4.1
Reliability Coefficients of Attitude towards School Infrastructure Questionnaire (N=175)

Attitudes	No. of Items	Kuder Richardson's Reliability coefficients
Cleanliness	5	0.58
Safety	7	0.68
Comfort	5	0.42
Adequacy	12	0.58
Exploring	12	0.50
Reliability	5	0.50
Easiness	7	0.68
Equal Opportunity	5	0.63
Willingness to Participate	10	0.50
All	68	Mean r_{tt} = 0.06

Table 4.2
Content Validity of Attitude towards School Infrastructure Questionnaire (N=175)

Dimensions	Item no.	Mean	SD	r	Dimensions	Item no.	Mean	SD	r
Cleanliness	1.1	0.74	0.4	0.68	Reliability	7.8	0.33	0.5	0.11
	2.1	0.91	0.3	0.35		8.1	0.88	0.3	0.44
	2.4	0.77	0.4	0.68		9.3	0.77	0.4	0.33
	3.1	0.69	0.5	0.60		9.4	0.68	0.5	0.41
	13.6	0.68	0.5	0.67		10.1	0.92	0.3	0.33
Safety	1.3	0.66	0.5	0.63		10.5	0.81	0.4	0.41
	1.7	0.57	0.5	0.24		11.3	0.87	0.3	0.49
	2.2	0.79	0.4	0.65		5.2	0.81	0.4	0.53
	3.2	0.73	0.4	0.70		6.3	0.72	0.5	0.63
	4.4	0.77	0.4	0.63		7.2	0.91	0.3	0.46
Comfort	12.3	0.74	0.4	0.61	Easiness	8.2	0.71	0.5	0.61
	13.3	0.78	0.4	0.63		8.4	0.74	0.4	0.62
	1.2	0.95	0.2	0.50		5.4	0.94	0.2	0.31
	1.6	0.62	0.5	0.55		5.5	0.73	0.5	0.72
	3.4	0.93	0.3	0.45		5.6	0.71	0.5	0.76
Adequacy	4.2	0.65	0.5	0.69	Equal Opportunity	6.4	0.74	0.4	0.78
	13.2	0.73	0.4	0.56		7.3	0.85	0.4	0.47
	1.4	0.89	0.3	0.41		7.6	0.85	0.4	0.54
	1.5	0.9	0.3	0.37		8.3	0.93	0.3	0.37
	1.8	0.61	0.5	0.53		9.1	0.79	0.4	0.59
Exploring	2.3	0.89	0.3	0.17	Willingness to Participate	9.5	0.74	0.4	0.67
	3.3	0.75	0.4	0.44		10.2	0.65	0.5	0.73
	4.1	0.97	0.2	0.35		11.2	0.79	0.4	0.69
	4.3	0.88	0.3	0.43		12.2	0.79	0.4	0.44
	5.3	0.51	0.5	0.40		9.2	0.93	0.3	0.45
	6.1	0.96	0.2	0.48		9.6	0.91	0.3	0.48
	7.7	0.74	0.4	0.50		10.3	0.79	0.4	0.32
	8.5	0.77	0.4	0.53		10.4	0.81	0.4	0.45
	12.5	0.89	0.3	0.52		11.1	0.95	0.2	0.35
	5.1	0.74	0.4	0.47		12.1	0.54	0.5	0.63
	6.2	0.88	0.3	0.28		12.4	0.46	0.5	0.22
	7.1	0.90	0.3	0.37		13.1	0.67	0.5	0.36
	7.4	0.77	0.4	0.53		13.4	0.77	0.4	0.50
	7.5	0.71	0.5	0.40		13.5	0.65	0.5	0.56

Table 4.3
Attitudinal Variable wise Means, SDs, Average, Item-total Correlation Coefficients of
ATSIQ (N=175)

Attitudes	Item size	Mean	SD	r
Cleanliness	5	3.80	1.28	0.60
Safety	7	5.04	1.81	0.58
Comfort	5	3.87	1.08	0.55
Adequacy	12	9.75	1.85	0.43
Exploring	12	9.23	1.79	0.38
Reliability	5	3.90	1.18	0.57
Easiness	7	5.75	1.54	0.56
Equal Opportunity	5	3.74	1.36	0.62
Willingness to Participate	10	7.48	1.72	0.43

Table 4.4
Descriptive Statistics of Nine Attitudinal Dimensions (N=572)

Attitudinal Dimensions	Mean	SD
Cleanliness	0.70	0.26
Safety	0.65	0.26
Comfort	0.73	0.21
Adequacy	0.77	0.13
Exploring	0.75	0.14
Reliability	0.75	0.21
Easiness	0.83	0.19
Equal Opportunity	0.66	0.27
Willingness to Participate	0.69	0.17

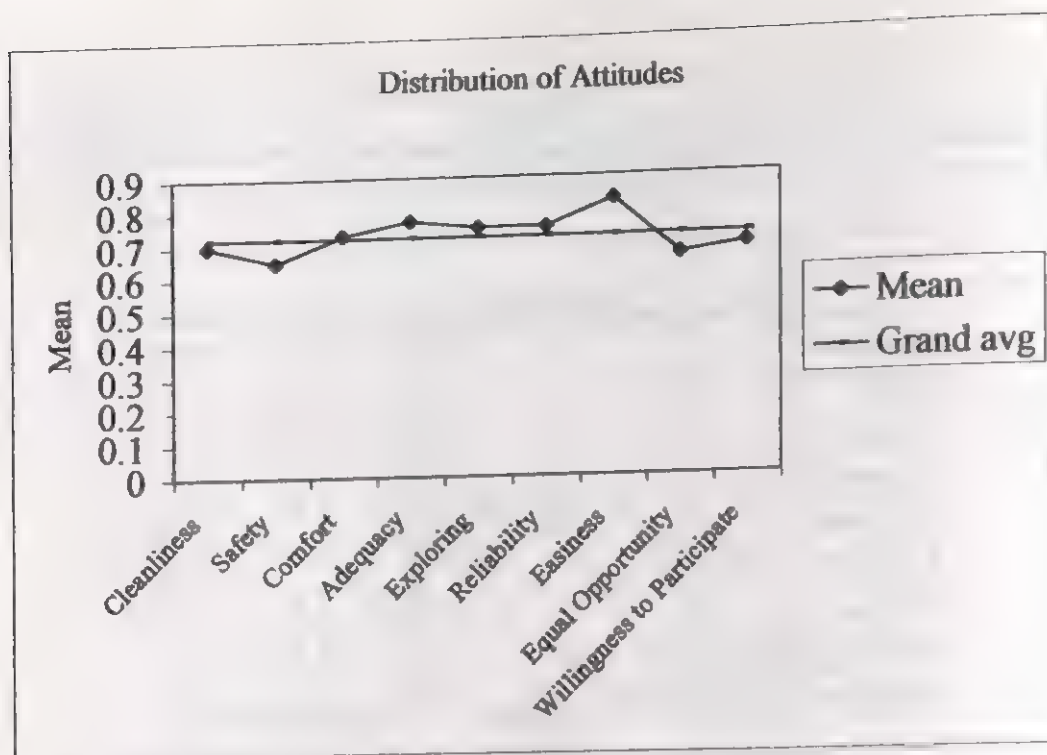


Figure 4.1 Distribution of Attitudes

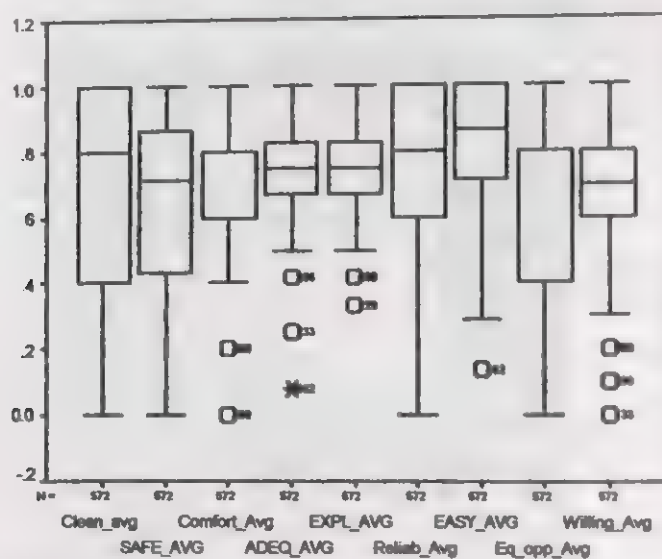


Figure 4.2 Box-Whisker plot of Attitude towards School Infrastructures

Table 4.5

Significant Differences in Attitude towards School Infrastructures by Gender, Religion, S-E-S, Districts, Blocks and School Infrastructure Groups

Variables	Wilks' Lambda	Rao's R	df	P-value
Gender	0.97	1.76	9,558	NS
Religion	0.92	5.06	9,532	0
S-E-S	0.9	3.03	9,242	0
District	0.35	14.44	452,499	0
Blocks	0.9	6.49	9,562	0
School	0.77	5.13	9,153	0

Table 4.6

Religion and SES wise Differences in Attitude towards School Infrastructure

Attitudes (by Religion)		Muslim (n=176)	Hindu (n=366)	Total (n=542)	F(1,540)	P-value
Cleanliness	Mean	0.70	0.71	0.71	0.03	0.86
	SD	0.26	0.26	0.26		
Safety	Mean	0.59	0.68	0.65	15.44	0.00
	SD	0.28	0.25	0.26		
Comfort	Mean	0.68	0.76	0.74	16.21	0.00
	SD	0.23	0.20	0.21		
Adequacy	Mean	0.77	0.77	0.77	0.06	0.80
	SD	0.14	0.13	0.13		
Exploring	Mean	0.78	0.74	0.75	9.05	0.00
	SD	0.13	0.14	0.14		
Reliability	Mean	0.74	0.76	0.75	0.68	0.41
	SD	0.22	0.21	0.21		
Easiness	Mean	0.83	0.83	0.83	0.01	0.94
	SD	0.20	0.19	0.19		
Equal Opportunity	Mean	0.70	0.65	0.66	3.87	0.05
	SD	0.28	0.27	0.27		
Willingness to Participate	Mean	0.68	0.70	0.70	2.98	0.08
	SD	0.16	0.17	0.17		
Attitude (by SES)		Low S-E-S (n=120)	High S-E-S (n=132)	Total (N=252)	F (1,250)	P-value
Cleanliness	Mean	0.71	0.72	0.72	0.04	0.85
	SD	0.28	0.25	0.26		
Safety	Mean	0.67	0.64	0.66	0.98	0.32
	SD	0.22	0.28	0.25		
Comfort	Mean	0.75	0.74	0.74	0.00	0.97
	SD	0.19	0.22	0.21		
Adequacy	Mean	0.79	0.75	0.77	7.65	0.01
	SD	0.12	0.14	0.13		
Exploring	Mean	0.78	0.74	0.76	6.02	0.01
	SD	0.13	0.15	0.14		
Reliability	Mean	0.75	0.76	0.76	0.07	0.78
	SD	0.19	0.24	0.21		
Easiness	Mean	0.87	0.79	0.83	12.52	0.00
	SD	0.17	0.20	0.19		
Equal Opportunity	Mean	0.67	0.65	0.66	0.18	0.67
	SD	0.29	0.29	0.29		
Willingness to Participate	Mean	0.69	0.70	0.70	0.15	0.70
	SD	0.18	0.16	0.17		

Table 4.7
District wise Differences in Attitude towards School Infrastructure

Attitudinal Dimensions		North				South		All	F	P
		24 (n=73)	Howrah (n=131)	Bankura (n=96)	Maldah (n=115)	24 (n=53)	Hoogly (n=104)	Grps (N=572)		
Cleanliness	Mean	0.69	0.84	0.76	0.51	0.85	0.61	0.70	35.09	0.00
	SD	0.23	0.19	0.23	0.21	0.21	0.29	0.26		
Safety	Mean	0.50	0.76	0.78	0.45	0.67	0.70	0.65	38.78	0.00
	SD	0.18	0.23	0.19	0.29	0.24	0.18	0.26		
Comfort	Mean	0.59	0.88	0.79	0.57	0.74	0.74	0.73	45.04	0.00
	SD	0.18	0.14	0.16	0.18	0.27	0.19	0.21		
Adequacy	Mean	0.75	0.82	0.79	0.71	0.76	0.76	0.77	10.37	0.00
	SD	0.10	0.14	0.14	0.12	0.14	0.11	0.13		
Exploring	Mean	0.79	0.78	0.72	0.74	0.79	0.73	0.75	4.72	0.00
	SD	0.08	0.13	0.14	0.16	0.15	0.15	0.14		
Reliability	Mean	0.73	0.87	0.77	0.65	0.68	0.76	0.75	17.53	0.00
	SD	0.16	0.19	0.22	0.20	0.23	0.18	0.21		
Easiness	Mean	0.86	0.93	0.86	0.64	0.81	0.89	0.83	44.19	0.00
	SD	0.15	0.13	0.15	0.18	0.22	0.16	0.19		
Equal Opportunity	Mean	0.62	0.75	0.61	0.71	0.71	0.54	0.66	9.87	0.00
	SD	0.23	0.23	0.29	0.29	0.26	0.26	0.27		
Willingness to Participate	Mean	0.58	0.75	0.76	0.61	0.71	0.72	0.69	21.28	0.00
	SD	0.16	0.17	0.15	0.13	0.17	0.14	0.17		

Table 4.10
Rank of School infrastructure Ratios across 18 schools based on DISE data (2006-2007)

Dist	Block	School Name	Indices ¹								Median Rank
			1	2	3	4	5	6	7	8	
North 24 pgs	Amdanga	Khelia P	1	1	12	12	16	12	16	12	12
		Uludanga	2	2	15	16	13	10	3.5	9	9.5
Howrah	Uluberia 1	Koijuri	4	18	9	7	3.5	6	18.5	15	8
		Maheshpur	3	9	16	14	3.5	8	16	2.5	8.5
	Shyampur 2	Bania	6	3	8	18	15	9	10	1	8.5
		Dehimondalghat	12	14	6	17	3.5	3	12	18	12
Bankura	Gangajal										
		Amarkan	14	16	1	4	3.5	14	3.5	4	4
	Joypur	Arsole B	10	7	2	6	3.5	15	16	2.5	6.5
		Moynapur	16	11	4	10	3.5	4	3.5	7.5	5.75
Maldah	Chanchol 2	Chanchal H/A	13	18	18	9	8	11	8	12	11.5
		Chanchol R D	8.5	4	17	11	18	18.5	3.5	12	11.5
	Kaliachak 1	Mothabari	15	10	5	5	19	5	3.5	5.5	5.25
		Bagichapur	7	5	11	15	17	17	3.5	16.5	13
South 24 pgs	Bhangar	Jagulgachhi	11	8	13	8	8	1	18.5	12	9.5
Hooghly	Polba	Polba Jr	17	13	14	13	10.5	7	12	5.5	12.5
		Polba G.S F P	19	15	7	1	8	16	14	19	14.5
	Chanditala	Moshat N Pr.	18	12	10	3	14	2	9	12	11
		Banamalipur									
		Pry	5	18	3	2	12	18.5	7	7.5	7.25

¹ Note: The 8 indices are:

- 1.No. of school text books : Total enrolment
- 2.No. of school uniform : No. of students (girls)
- 3.No. of students : Total teachers
- 4.No. of students : Total no. of classrooms
- 5.No. of repeaters : Total enrolment
- 6.No. of students passed with > 60% : Students passed
- 7.No. of classrooms in good condition : Total no. of classrooms
- 8.No. of blackboards : Total no. of classrooms

Table 4.11
Selected Good and Poor Infrastructure Schools according to Median Ranks

Infrastructure	Dist	Block	School Name	n	Median Rank
Good Infrastructure (n=85)	Bankura	Gangajal Ghati	Amarkan	16	4
			Moynapur	40	5.75
	Maldah	Kaliachak 1	Mothabari	29	5.25
Poor Infrastructure (n=78)	Hooghly	Polba	Polba G.S F P	28	14.5
			Polba Jr. Basic	30	12.5
	Maldah	Kaliachak 1	Bagichapur	20	13

Table 4.12
Mean Differences in Attitudinal Dimensions toward School Infrastructure between
Students of Rural Schools with Good and Poor Infrastructure Facilities

Attitudinal Dimensions	Good Infrastructure (n=85)		Poor Infrastructure (n=78)		F-value (df=1)	p
	Mean	SD	Mean	SD		
Cleanliness	3.48	1.36	2.69	1.42	13.19**	0.00
Safety	4.08	2.38	4.18	1.7	0.09	0.77
Comfortability	3.6	1.15	2.99	0.71	16.46**	0.00
Adequacy	9.64	1.74	9.1	1.21	5.04*	0.03
Exploring	9.53	1.29	8.42	1.53	25.03**	0.00
Reliability	4.42	0.73	3.42	0.9	60.81**	0.00
Easiness	5.91	1.37	5.59	1.28	2.3	0.13
Equal Opportunity	4.26	1.04	3.06	1.31	41.92**	0.00
Willingness to Participate	7.22	1.85	6.1	0.97	22.74**	0.00

Table 4.13
Stepwise Discriminant Function Analysis for Differentiating Schools with Good and Poor Infrastructure

Step	Attitudes	Wilks' Lambda	Df1	df2	df3	Exact F			
						Statistic	df1	df2	Sig.
1	Reliability	.726	1	1	161	60.808	1	161	.000
2	Equal opportunity	.645	2	1	161	43.966	2	160	.000
3	Comfort	.615	3	1	161	33.224	3	159	.000
4	Safety	.544	4	1	161	33.174	4	158	.000
5	Cleanliness	.527	5	1	161	28.139	5	157	.000

At each step, the variable that minimizes the overall Wilks' Lambda is entered.

- a Maximum number of steps is 18.
- b Maximum significance of F to enter is .05.
- c Minimum significance of F to remove is .10.
- d F level, tolerance, or VIN insufficient for further computation.

Table 4.14
Fisher's Linear Discriminant Functions for differentiating Schools with Good and Poor Infrastructure

Attitudinal Dimensions	Good Infrastructure	Poor Infrastructure
Cleanliness	5.05	-0.46
Safety	-1.27	-0.45
Comfort	4.93	3.76
Reliability	6.2	4.51
Equal Opportunity	2.58	2.03
Constant	-26.27	-15.57

Table 4.15
Canonical Discriminant Function of Good and Poor Infrastructure Schools

Eigen Values	Canonical Correlation	Wilk's Lambda	Chi-Square	Df	P-Value
0.9	0.687	0.53	101.41	5	0

Table 4.16
Structure Coefficients to Determine Relative Importance of Variables in Predictive Differences between Good and Poor Infrastructure Schools

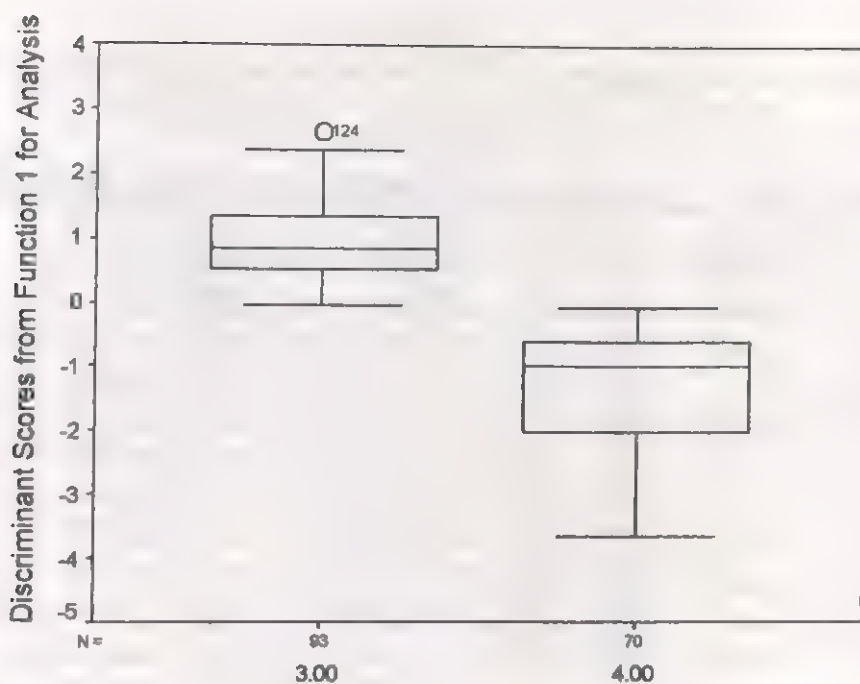
Attitudinal Dimensions	Structure Coefficients
Reliability	0.64
Equal Opportunity	0.53
Exploring	0.41
Willingness to Participate	0.39
Comfort	0.33
Cleanliness	0.3
Adequacy	0.18
Easiness	0.12
Safety	-0.02

Table 4.17
Classification Matrix of Good and Poor Infrastructure Schools

Original Group		Predicted Group		Total
		Good Infrastructure	Poor Infrastructure	
Good	Count	75	10	85
Poor		18	60	78
Total		93	70	163
Good	Percentage	88.2	11.8	100
Poor		23.1	76.9	100
Correct Classification Percentage= $(75+60)/163 \times 100=82.8$				

Table 4.18
Mean Differences in Discriminant Functions of Classified Good and Poor Infrastructure Schools

Groups	N	Mean	SD	T	df	p
Good Infrastructure	93	0.98	0.64	18.51	161	.00
Poor Infrastructure	70	-1.30	0.93			



Predicted Group for Analysis 1

Figure 4.4. Box-plot Analysis of Discriminant Scores between Good and Poor Infrastructure Schools.

Table 4.19
Interaction Effects of Religion and SES, Religion and District on Attitude towards School Infrastructure

	Wilks' Lambda	Rao's R	df 1	df 2	P-level
Religion (R)	0.93	1.91	9	222	0.05
S-E-S (S)	0.91	2.37	9	222	0.01
R X S	0.97	0.69	9	222	0.72
Religion (R)	0.98	1.38	9	522	0.19
District (D)	0.45	10.08	45	2338	0.00
R X D	0.86	1.82	45	2338	0.00

Table 4.20
Means and SDs of Attitude towards School Infrastructure by Religion and District

Religion	Dist	Clean	Safe	Comf	Adeq	Expl	Reliab	Easy	Equal	Willing	N
Muslim	North	0.64	0.45	0.57	0.75	0.79	0.71	0.86	0.63	0.61	52
Muslim	Howrah	0.90	0.81	0.89	0.89	0.83	0.94	0.96	0.84	0.81	39
Muslim	Bankura	0.80	0.68	0.68	0.67	0.65	0.80	0.88	0.36	0.72	5
Muslim	Maldah	0.49	0.49	0.59	0.71	0.71	0.64	0.66	0.72	0.62	45
Muslim	South	0.85	0.66	0.76	0.76	0.79	0.68	0.84	0.70	0.71	33
Muslim	Hooghly	0.80	0.50	0.90	0.71	0.79	0.80	0.93	0.70	0.70	2
Hindu	North	0.85	0.63	0.67	0.75	0.77	0.76	0.84	0.60	0.55	20
Hindu	Howrah	0.82	0.73	0.88	0.79	0.76	0.85	0.92	0.72	0.73	86
Hindu	Bankura	0.76	0.78	0.80	0.80	0.73	0.76	0.86	0.64	0.76	86
Hindu	Maldah	0.52	0.42	0.59	0.70	0.74	0.65	0.62	0.69	0.63	62
Hindu	South	0.86	0.71	0.74	0.75	0.76	0.67	0.78	0.74	0.69	18
Hindu	Hooghly	0.62	0.71	0.74	0.76	0.73	0.76	0.88	0.54	0.72	94
All		0.71	0.65	0.74	0.77	0.75	0.75	0.83	0.66	0.70	542

Table 4.21
Interaction Effects of Religion and Blocks, Religion, SES and Blocks on Attitude towards School Infrastructure

	Wilks' Lambda	Rao's R	df 1	df 2	P-level
Religion (R)	0.93	4.63	9	530	0.00
Block Literacy(L)	0.94	3.91	9	530	0.00
R X L	0.91	5.84	9	530	0.00
Religion (R)	0.92	2.01	9	218	0.04
S-E-S (S)	0.91	2.39	9	218	0.01
Block Literacy(L)	0.92	2.20	9	218	0.02
R X S	0.97	0.80	9	218	0.62
R X L	0.88	3.22	9	218	0.00
S X L	0.92	2.25	9	218	0.02
R X S X L	0.96	1.08	9	218	0.38

Table 4.22
Mean and SD on Attitude towards School Infrastructure
by Religion by SES and by Blocks

Religio n	S-E-S	Liter acy	Cleanli ness	Safe ty	Comf ort	Adequ acy	Explor ing	Reliab ility	Easine ss	Equal Opport unity	Willi- Part	N
Muslim	Low	Low	0.89	0.63	0.77	0.80	0.79	0.66	0.87	0.74	0.66	14
Muslim	Low	High	0.75	0.62	0.74	0.81	0.81	0.82	0.89	0.72	0.72	22
Muslim	High	Low	0.61	0.55	0.70	0.73	0.77	0.70	0.75	0.73	0.64	21
Muslim	High	High	0.75	0.55	0.70	0.77	0.72	0.73	0.76	0.56	0.72	16
Hindu	Low	Low	0.73	0.69	0.69	0.77	0.70	0.70	0.87	0.54	0.66	35
Hindu	Low	High	0.73	0.73	0.86	0.83	0.81	0.79	0.87	0.74	0.78	33
Hindu	High	Low	0.71	0.59	0.73	0.74	0.70	0.80	0.78	0.62	0.66	41
Hindu	High	High	0.75	0.73	0.78	0.74	0.76	0.75	0.80	0.66	0.74	52
Total			0.73	0.65	0.75	0.77	0.75	0.75	0.82	0.66	0.70	234

5

Perception Of School Infrastructure

*Overall 76% of
total students
possessed favorable
perception to
school
infrastructures*

In chapter 4, distribution of different attitudinal variables across different demographic conditions was examined. It is noted that different attitudes vary across gender, religion, S-E-S, districts, blocks and schools with good and poor infrastructures. Attitude varies with one's perception of stimulus. Therefore, perception of school infrastructure across different demographic groups is discussed in this chapter. The findings will help the management to find out key areas for intervention. Like chapter 4, this chapter has 2 sections. Section 1 includes scale development and Section 2 includes discussion about perception of different school infrastructures.

Section – 1

5.1 Scale development:

Initially, items of the attitude towards school infrastructures were classified into thirteen infrastructure categories namely, Classroom, Drinking Water, Toilet, Blackboard, Teachers, Book, Teaching learning materials, Friends, Games, Cultural Programs, Book bank, Mid-day Meal, and Health Check-up. Most of these infrastructures are available in rural schools. After item analysis, it is found that each item was significantly correlated with total score of corresponding infrastructure subscale suggesting that the questionnaire can be arranged according to the infrastructure components as well (Table 5.1).

Section - 2

Table 5.2 shows perception of school infrastructure distribution. Overall 76% of total students possessed favorable perception to school infrastructures. This is mainly to text book availability (Mean=0.85, SD=0.34), drinking water facilities (Mean=0.81, SD=0.38), opportunity to participate into games or sports (Mean=0.80, SD=0.38) and into cultural programmes (Mean=0.70

Three principal components were extracted (Table 5.4, Figure 5.2) namely; basic infrastructure, supportive infrastructure, activity based infrastructure

(Mean=0.80, SD=0.38), and into cultural programmes (Mean=0.79, SD=0.39). Figure 5.1 indicates relatively less favorable perception (below 0.76) to mid-day meal (Mean=0.68, SD=0.45), book-bank (Mean=0.71, SD=0.45), teaching (Mean=0.71, SD=0.41) and health check-up (Mean=0.74, SD=0.44). Further, considering significant inter-correlation among most of the variables (Table 5.3) principle component analysis with varimax rotation is computed, in order to extract latent relationship among 13 infrastructure variables. Three principal components were extracted (Table 5.4, Figure 5.2) namely; basic infrastructure, supportive infrastructure, activity based infrastructure. Basic infrastructure component includes classroom, blackboard, teaching, book and mid-day meal. Drinking water, toilet, friend, book bank, health check-up have high loading on supportive infrastructure. Whereas, teaching learning material, games, cultural programme have high loading on activity-based infrastructure. These three factors together accounted for 50.06% variances of all variables. The factor scores of three principle components were estimated in the following manner.

Basic Infrastructure = Classroom*.62+blackboard*0.70+teaching*0.63+book*0.68+ Mid-day meal*0.49

Supportive Infrastructure = Drinking water*0.81+ Toilet*0.79 + Friend*0.49+Book bank*0.47+Health checkup*0.46

Activity based Infrastructure = TLM*0.63+ Games*0.74+ Cultural programs*0.63

Instead of using the 13 infrastructure variables, these three factor scores were used for further analysis. Use of factor scores helps to reduce redundancy error in interpreting the variables.

5.2 Main Effects

Gender

Table 5.5. reflects no significant mean differences in perception of basic, supportive and activity based infrastructures between boys and girls though means of girls for each variable were above the total mean.

Religion

Significant mean differences were noted in perception of basic [F(1,540)=13.88, $p<0.00$] and activity based [F(1,540)=6.00, $p<0.01$] infrastructures between Muslim and Hindu students (Table 5.6). Hindu students possessed higher scores in basic infrastructure (Mean=53.84, SD=12.43) but Muslims depicted a high score in activity based infrastructure Mean=1.60, SD=1.28) Overall suggesting a higher satisfaction of Muslim students in community activities rather than physical facilities of the school. In chapter 4, it is noted that Muslim students felt more uncomfortable and unsafe in school, lower score on basic infrastructure could have accounted for it.

Socioeconomic Status

Significant mean difference is noted in basic infrastructure [F(1,250)=4.42, $p<0.04$] and activity based infrastructure [F(1,250)=7.84, $p<0.01$] between different socioeconomic groups. Students coming from poor socio-economic group possessed significantly higher score on perception of basic infrastructure (Mean=54.89, SD=12.55) and activity based infrastructure (Mean=1.60, SD=0.26), suggesting a more favourable infrastructure perception of students belonging to low socioeconomic status. No significant mean difference was noted in perception of supportive infrastructure (Table 5.7)

Hindu students possessed higher scores in basic infrastructure but Muslims depicted a high score in activity based infrastructure.

A more favourable infrastructure perception of students belonging to low socioeconomic status.

<p><i>Students of Howrah districts possessed higher scores on 3 infrastructures and those of Maldah districts possessed lower score on basic and activity based infrastructure.</i></p>	<p>Districts</p> <p>A significant mean difference is found among 6 districts an all the three infrastructure variables (Table 5.8). In district wise comparison (Table 5.8 and Table 5.9), students of Howrah districts possessed higher scores on 3 infrastructures and those of Maldah districts possessed lower score on basic and activity based infrastructure.</p>
<p><i>High literate blocks possessed significantly higher scores on supportive and activity based infrastructures and less literate blocks possessed higher scores on basic infrastructure.</i></p>	<p>Block Literacy</p> <p>Significant mean differences were found between students of high and low literate blocks in all the three infrastructure components (Table 5.10). High literate blocks possessed significantly higher scores on supportive (Mean=2.36, SD=0.58) and activity based infrastructures (Mean=1.61, SD=0.28) and less literate blocks possessed higher scores on basic infrastructure (Mean=53.45, SD=13.16).</p>
<p><i>Students of good infrastructure school perceived their school infrastructure more favorable</i></p>	<p>School Infrastructure Facility</p> <p>In comparison between schools with good and poor infrastructures, a significant mean difference is noted (Table 5.11) in supportive [$F(1,161)=25.94, p<0.00$] and activity based infrastructures [$F(1,161)=5.14, p<0.02$]. It is noted that students of good infrastructure school perceived their school infrastructure more favorably in both supportive (mean=2.45, SD=0.52) and activity based infrastructure (Mean=1.54, SD=0.28). In perceiving the basic infrastructures, they also possessed higher scores.</p> <p>5.3 Interaction Effects</p> <p>Basic Infrastructure</p> <p>Basic infrastructure perception varied with interaction between</p>

gender and religion [$F(1,535)= 14.71, p< 0.00$] in significant manner (Table 5.12). Table 5.13 reflects that Hindu boys (Mean= 54.12, SD= 12) had more favorable perception to basic infrastructure than Muslim boys (Mean= 43.88, SD= 15.32). Hindu girls (Mean= 53.57, SD= 12.86) had more favorable perception than Muslim girls (Mean= 52.79, SD= 13.85).

When interacting with S-E-S (Table 5.14) religion failed to cause any significant change [$F(1, 230)= 0.20, p< 0.65$]. Perception to basic school infrastructure did not vary (Table 5.15) by the interaction effects of school infrastructure facilities and block literacy rate [$F(1, 159)=1.96, p< 0.16$].

Supportive Infrastructure

Table 5.16 and 5.17 shows perception of supportive infrastructure did not vary with interaction between gender and religion [$F(1, 535)= 0.92, p< 0.34$] or S-E-S and religion [$F(1, 230)= 0.91, p< 0.34$]. But it varied (Table 5.18) with interaction between school infrastructure facilities and block level literacy rate [$F(1, 159)= 3.90, p< 0.05$]. Students of good infrastructure schools located in high literate blocks perceived supportive infrastructure more favorably (Mean= 2.46, SD= 0.53) than students of poor school infrastructures located in high literate blocks (Mean= 2.29, SD= 0.42) (Table 5.19).

Activity Based Infrastructure

No significant interaction effect between gender and religion, S-E-S and religion, school infrastructure facility and block literacy rate was found in perception of activity based infrastructures (Table 5.20, 5.21, 5.22)

SUMMARY

Attitude formation depends upon one's perception of school infrastructures. Therefore, perception of 13 school infrastructures was examined in this chapter. Students perceived textbook availability, drinking water facility, participation into sports and cultural programmes more favourably than mid-day meal, book bank, teaching, and health check-up facilities. Principal component analysis revealed perception of three latent infrastructures – basic, supportive and activity based infrastructures. Perception of basic and activity based infrastructure varies with differences in religion, socioeconomic status, districts, and block literacy rates. On the other hand, perception of supportive infrastructure varies among districts, school infrastructure facilities and between block literacy rates. Interaction effects were found in perception of basic and supportive infrastructures but not in activity infrastructures.

Table 5.1

Item-Total Correlation Coefficients of Perception of School Infrastructure (N=572)

Dimensions	Item no.	N	Mean	SD	R	Dimensions	Item no.	N	Mean	SD	R
Classroom	1	570	0.79	0.41	0.24	Book	4	570	0.93	0.25	0.38
	2	570	0.96	0.20	0.27		5	570	0.71	0.46	0.63
	3	570	0.55	0.50	0.60		6	564	0.74	0.44	0.57
	4	568	0.89	0.31	0.37		1	571	0.97	0.18	0.30
	5	570	0.90	0.30	0.34		2	569	0.86	0.34	0.56
	6	563	0.55	0.50	0.62		3	570	0.76	0.42	0.73
	7	403	0.66	0.48	0.37		4	568	0.79	0.41	0.65
	8	565	0.62	0.49	0.61		1	570	0.92	0.28	0.41
Drinking Water	1	539	0.89	0.31	0.45	Teaching Learning Material	2	570	0.91	0.29	0.32
	2	540	0.72	0.45	0.75		3	569	0.88	0.33	0.31
	3	540	0.91	0.28	0.39		4	568	0.79	0.41	0.56
	4	539	0.70	0.46	0.76		5	569	0.77	0.42	0.48
Toilet	1	542	0.59	0.49	0.68	Cultural Program	6	569	0.86	0.34	0.48
	2	543	0.73	0.45	0.63		7	569	0.52	0.50	0.31
	3	540	0.78	0.42	0.41		8	565	0.42	0.49	0.19
	4	541	0.91	0.28	0.40		1	568	0.92	0.28	0.38
Blackboard	1	542	0.59	0.49	0.30	Book bank	2	568	0.68	0.47	0.57
	2	543	0.73	0.45	0.74		3	567	0.71	0.45	0.45
	3	540	0.78	0.42	0.57		4	569	0.83	0.38	0.52
	4	541	0.91	0.28	0.70		5	566	0.83	0.38	0.58
Friend	1	570	0.82	0.38	0.53	Mid-day Meal	1	413	0.78	0.42	0.85
	2	570	0.70	0.46	0.60		2	406	0.65	0.48	0.83
	3	570	0.93	0.25	0.37		3	406	0.70	0.46	0.86
	4	570	0.59	0.49	0.58		1	565	0.68	0.46	0.61
Games	5	570	0.78	0.41	0.40	Health Check-Up	2	565	0.77	0.42	0.58
	1	570	0.71	0.46	0.57		3	564	0.71	0.45	0.61
	2	571	0.93	0.25	0.40		4	565	0.46	0.50	0.35
	3	571	0.84	0.36	0.41		5	565	0.79	0.41	0.48
	4	571	0.71	0.45	0.53		1	500	0.68	0.47	0.52
	5	570	0.72	0.45	0.58		2	495	0.75	0.43	0.67
Teacher	6	567	0.90	0.30	0.41		3	495	0.78	0.41	0.50
	1	571	0.73	0.44	0.34		4	496	0.73	0.44	0.59
	2	571	0.81	0.39	0.41		5	492	0.76	0.43	0.58
	3	570	0.33	0.47	0.53		6	488	0.78	0.41	0.51

N.B: All item-total Correlation coefficients were significant at 0.01 level

Table 5.2
Descriptive Statistics about Perception of School Infrastructures (N=572)

Variables	No. of items	Mean	SD	Average r
Class room	8	0.74	0.40	0.43
Drinking Water	4	0.81	0.38	0.59
Toilet	4	0.75	0.41	0.53
Black board	4	0.75	0.41	0.58
Friend	5	0.76	0.40	0.52
Games	6	0.80	0.38	0.48
Mid-day meal	5	0.68	0.45	0.53
Teaching	6	0.71	0.41	0.48
Book	4	0.85	0.34	0.56
Teaching Learning Materials	8	0.76	0.38	0.38
Cultural programs	5	0.79	0.39	0.50
Book bank	3	0.71	0.45	0.85
Health checkup	6	0.74	0.44	0.57
All	68	0.76	0.40	0.54

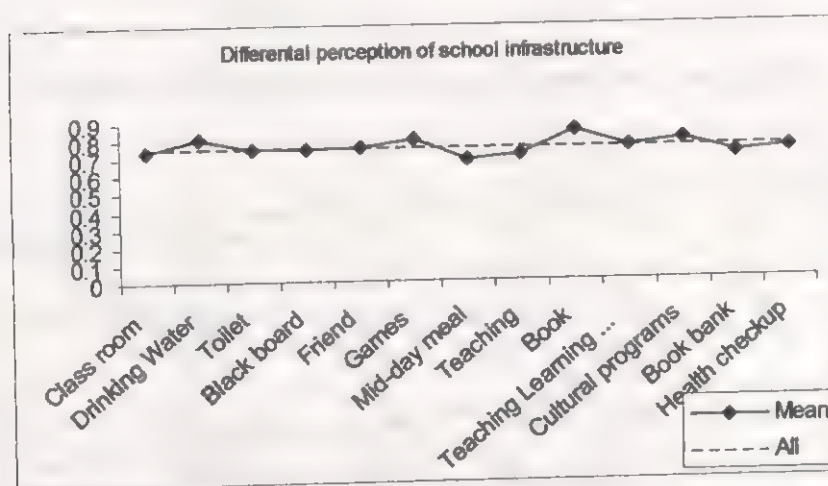


Figure 5.1 Differential Perception of School Infrastructure

Table 5.3
Inter-correlation among Infrastructure Variables (N=572)

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Classroom	1.00												
2 Drinking Water	0.25**	1.00											
3 Toilet	0.28**	0.61**	1.00										
4 Black board	0.33**	0.09*	0.22**	1.00									
5 Teaching	0.38**	0.22**	0.27**	0.38**	1.00								
6 Book	0.36**	0.11*	0.23**	0.41**	0.43**	1.00							
7 TLM	0.13**	-0.06	0.05	0.20**	0.24**	0.23**	1.00						
8 Friend	0.32**	0.30**	0.34**	0.21**	0.29**	0.31**	0.24**	1.00					
9 Games	0.08*	0.09*	0.11*	0.14**	0.24**	0.21**	0.33**	0.31**	1.00				
Cultural													
10 programme	0.11*	0.05	0.07	0.14**	0.34**	0.21**	0.24**	0.27**	0.30**	1.00			
11 Book bank	0.00	0.17**	0.20**	-0.02	-0.01	-0.04	0.07	0.18**	0.15**	0.05	1.00		
12 Mid-day meal	0.15**	0.04	0.11*	0.31**	0.25**	0.32**	0.16**	0.16**	0.22**	0.19**	0.03	1.00	
13 Health checkup	0.33**	0.21**	0.29**	0.20**	0.22**	0.11*	0.01	0.25**	0.04	-0.03	0.08*	0.19**	1.00

*p<0.05, **p<0.01

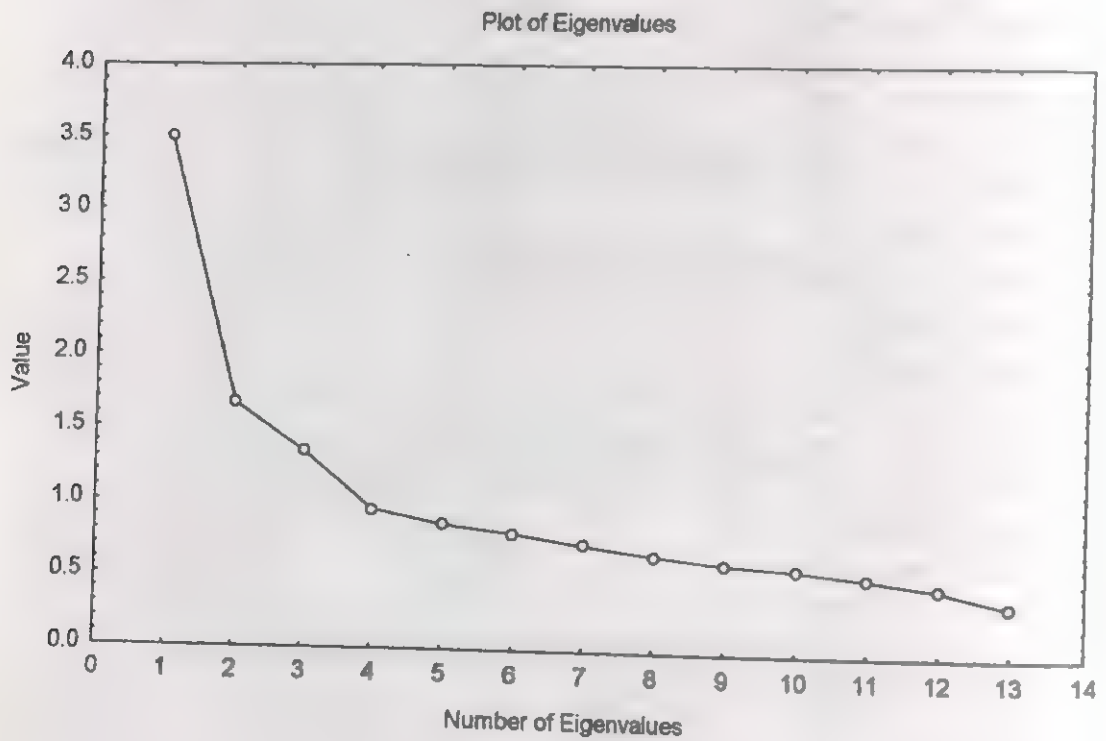


Figure: 5.2 Scree Plot of Principal Components

Table 5.4

Principal Components of School Infrastructure Perception (N=572)

Infrastructures	Basic Infrastructure	Supportive Infrastructure	Activity based Infrastructure
Class room	0.62	0.35	-0.03
Drinking Water	0.06	0.81	-0.03
Toilet	0.20	0.79	0.03
Black board	0.70	0.06	0.10
Teaching	0.63*	0.19	0.29
Book	0.68	0.07	0.25
TLM	0.21	-0.09	0.63
Friend	0.24	0.49	0.44
Games	0.07	0.11	0.74
Cultural Programme	0.19	-0.01	0.63
Book bank	-0.35	0.47	0.36
Mid-day meal	0.49	-0.02	0.26
Health checkup	0.38	0.46	-0.17
Eigen Value	3.50	1.67	1.34

Table 5.5

Gender wise Differences in School Infrastructure Perception

		Girl (n=308)	Boy (n=260)	Total (n=568)	F(1, 566)	P-value
Basic Infrastructure	Mean	53.26	51.12	52.28	3.54	0.06
	SD	13.16	13.83	13.50		
Supportive Infrastructure	Mean	2.32	2.24	2.28	2.24	0.13
	SD	0.61	0.61	0.61		
Activity-based infrastructure	Mean	1.57	1.54	1.56	1.68	0.19
	SD	0.26	0.28	0.27		

Table 5.6
Religion wise Differences in School Infrastructure Perception

		Muslim (n=176)	Hindu (n=366)	Total (n=542)	F(1,540)	P-value
Basic Infrastructure	Mean	49.29	53.84	52.36	13.88	0.00
	SD	14.96	12.43	13.46		
Supportive Infrastructure	Mean	2.26	2.31	2.29	0.76	0.38
	SD	0.61	0.60	0.60		
Activity-based infrastructure	Mean	1.60	1.54	1.56	6.00	0.01
	SD	0.28	0.27	0.27		

Table 5.7
S-E-S wise Differences in School Infrastructure Perception

		Low S-E-S (n=120)	High S-E-S (n=132)	Total (N=252)	F (1,250)	P-value
Basic Infrastructure	Mean	54.89	51.39	53.05	4.42	0.04
	SD	12.55	13.78	13.30		
Supportive Infrastructure	Mean	2.25	2.34	2.30	1.45	0.23
	SD	0.75	0.49	0.63		
Activity-based infrastructure	Mean	1.60	1.50	1.55	7.84	0.01
	SD	0.26	0.29	0.28		

Table 5.8
District wise Differences in School Infrastructure Perception

		North 24 (n=73)	Howrah (n=131)	Bankura (n=96)	Maldah (n=115)	South 24 (n=53)	Hoogly (n=104)	Total (N=572)	F (5,566)	P- value
Basic Infrastructure	Mean	47.05	58.86	55.89	41.75	54.40	54.69	52.24	31.34	0.00
	SD	13.44	11.23	12.22	11.63	13.37	11.23	13.48		
Supportive Infrastructure	Mean	1.91	2.61	2.47	2.16	2.45	1.98	2.28	25.96	0.00
	SD	0.45	0.48	0.46	0.38	0.53	0.88	0.61		
Activity-based infrastructure	Mean	1.66	1.66	1.51	1.46	1.54	1.53	1.56	10.84	0.00
	SD	0.24	0.23	0.30	0.27	0.28	0.24	0.27		

Table 5.9
Districts with High and Low Scores in School Infrastructure Perception

	High Score	Low Score
Basic Infrastructure	Howrah	Maldah
Supportive Infrastructure	Howrah	North 24 Pgn(s)
Activity-based Infrastructure	North 24 Pgn(s), Howrah	Maldah

Table 5.10
School Infrastructure Perception of Students in More and Less Literate Blocks

		Low Literate (n=268)	High Literate (n=304)	Total (N=572)	F (1,570)	P- value
Basic Infrastructure	Mean	53.45	51.17	52.24	4.10	0.04
	SD	13.16	13.69	13.48		
Supportive Infrastructure	Mean	2.19	2.36	2.28	10.46	0.00
	SD	0.64	0.58	0.61		
Activity-based infrastructure	Mean	1.51	1.61	1.56	19.17	0.00
	SD	0.24	0.28	0.27		

Table 5.11
Mean Differences in School Infrastructure Perception between Students of
Rural Schools with Good and Poor Infrastructure Facilities

		Good Infrastructure (n=85)	Poor Infrastructure (n=78)	Total (n=163)	F (1,161)	P-value
Basic						
Infrastructure	Mean	51.71	51.66	51.69	0.00	0.98
	SD	14.95	14.05	14.48		
Supportive						
Infrastructure	Mean	2.45	1.85	2.16	25.94	0.00
	SD	0.52	0.92	0.80		
Activity-based						
Infrastructure	Mean	1.54	1.44	1.49	5.14	0.02
	SD	0.28	0.26	0.27		

Table 5.12
Interaction Effect of Gender and Religion
on Basic Infrastructure Perception of Students

	Df Effect	MS Effect	df Error	MS Error	F	P-level
Gender (G)	1	1977.68	535	171.92	11.50	0.00
Religion (R)	1	3429.15	535	171.92	19.95	0.00
G x R	1	2528.47	535	171.92	14.71	0.00

Table 5.13
Descriptive Statistics by Gender and Religion
on Basic Infrastructure Perception of Students

Gender	Religion	N	Mean	SD
Girl	Muslim	107	52.79	13.85
	Hindu	187	53.57	12.86
Boy	Muslim	66	43.88	15.32
	Hindu	179	54.12	12
Total		539	52.41	13.47

Table 5.14
Interaction Effect of Socioeconomic Status and Religion
on Basic Infrastructure Perception of Students

	Df Effect	MS Effect	Df Error	MS Error	F	P-level
S-E-S (S)	1	836.48	230	170.57	4.90	0.03
Religion (R)	1	613.95	230	170.57	3.60	0.06
S x R	1	34.32	230	170.57	0.20	0.65

Table 5.15
Interaction Effect of School Infrastructure Facilities and Block Literacy Rate
on Basic Infrastructure Perception of Students

	df Effect	MS Effect	Df Error	MS Error	F	P-level
Infrastructure (I)	1	1241.67	159	183.39	6.77	0.01
Literacy (L)	1	4265.45	159	183.39	23.26	0.00
I x L	1	360.01	159	183.39	1.96	0.16

Table 5.16
Interaction Effect of Gender and Religion
on Supportive Infrastructure Perception of Students

	Df Effect	MS Effect	Df Error	MS Error	F	P-level
Gender (G)	1	0.83	535	0.36	2.30	0.13
Religion (R)	1	0.27	535	0.36	0.76	0.38
G x R	1	0.33	535	0.36	0.92	0.34

Table 5.17
Interaction Effect of Socioeconomic Status and Religion
on Supportive Infrastructure Perception of Students

	Df Effect	MS Effect	Df Error	MS Error	F	P-level
S-E-S (S)	1	0.01	230	0.35	0.03	0.85
Religion (R)	1	0.05	230	0.35	0.14	0.71
S x R	1	0.32	230	0.35	0.91	0.34

Table 5.18
Interaction Effect of School Infrastructure Facilities and Block Literacy Rate
on Supportive Infrastructure Perception of Students

	df	MS	Df	MS		
	Effect	Effect	Error	Error	F	P-level
Infrastructure (I)	1	5.22	159	0.52	9.98	0.00
Literacy (L)	1	2.80	159	0.52	5.34	0.02
I x L	1	2.04	159	0.52	3.90	0.05

Table 5.19
Descriptive Statistics by School Infrastructure Facilities and Block Literacy Rate
on Supportive Infrastructure Perception of Students

Infrastructure	Literacy	N	Mean	SD
Good	Low	16	2.41	0.47
	High	69	2.46	0.53
Poor	Low	58	1.70	1.00
	High	20	2.29	0.42
Total		163	2.16	0.80

Table 5.20
Interaction Effect of Gender and Religion
on Activity Based Infrastructure Perception of Students

	Df	MS	Df	MS		
	Effect	Effect	Error	Error	F	P-level
Gender (G)	1	0.09	535	0.07	1.24	0.27
Religion (R)	1	0.31	535	0.07	4.15	0.04
G x R	1	0.00	535	0.07	0.01	0.91

Table 5.21
Interaction Effect of Socioeconomic Status and Religion
on Activity Based Infrastructure Perception of Students

	Df	MS	Df	MS		
	Effect	Effect	Error	Error	F	P-level
S-E-S (S)	1	0.53	230	0.08	6.66	0.01
Religion (R)	1	0.03	230	0.08	0.41	0.52
S x R	1	0.09	230	0.08	1.19	0.28

Table 5.22
Interaction Effect of School Infrastructure Facilities and Block Literacy Rate
on Activity Based Infrastructure Perception of Students

	df	MS	Df	MS	F	P-level
	Effect	Effect	Error	Error		
Infrastructure (I)	1	0.22	159	0.07	3.04	0.08
Literacy (L)	1	0.00	159	0.07	0.00	0.95
I x L	1	0.13	159	0.07	1.79	0.18

Motivation to attend school is the predicted variable in this study. It refers to one's desire to attend school in spite of all difficulties. This is measured with 10-item questionnaires. Details description of the questionnaire is given in section 1 and its distribution across cross sections of society in section 2.

Section 1

Initially, few rural schools were visited and one 10-item questionnaire with yes and no response categories were developed. Table 6.1 shows that all items were correlated with each other and they were significantly related to total score suggesting good content validity.

Table 6.1
Inter Correlation Matrix of Items of Motivation to Attend School (N=572)

Items	1	2	3	4	5	6	7	8	9	10	Total
1	1										
2	0.08**	1									
3	0.04	0.25**	1								
4	0.01	0.33**	0.25**	1							
5	0.13**	0.09**	0.04	0.16**	1						
6	0.02	0.25**	0.12**	0.30**	0.25**	1					
7	0.10**	0.14**	0.12**	0.27**	0.08	0.10**	1				
8	0.07	0.16**	0.09**	0.13**	0.12**	0.13**	0.25**	1			
9	0.06	0.07	0.09**	0.14**	0.13**	0.15**	0.11**	0.02	1		
10	0.00	0.31**	0.09**	0.35**	0.07	0.20**	0.20**	0.11**	0.34**	1	
Total	0.16**	0.16**	0.16**	0.17**	0.26**	0.13**	0.20**	0.22**	0.27**	0.20**	1

** $p < 0.01$

Reliability coefficient using rational equivalence was high ($r_{tt} = 0.69$) as noted in Table 6.2

Section 2

2.1 Main Effect

Students of the current study have moderate level of motivation to attend the school. Only 67% (Mean 6.72, SD= 2.06) felt desire to attend the school (Table 6.3).

Usually, it is assumed that due to socio-economic condition, students do not feel desire to attend school. But current study noted no significant mean differences

6

Motivation To Attend School

Only 67%
(Mean 6.72,
SD = 2.06) felt
desire to
attend the
school

[$F(1,250) = 2.80$, NS] between students of high and low socio-economic status. Students studying in schools with good infrastructure felt significantly [$F(1,161) = 36.54$, $p < 0.00$] more desire to attend school than their counterparts. Again, students belonged to more literate blocks like to attend school more than students of low literate blocks in a significant manner [$F(1,570) = 29.64$, $p < 0.00$]. In district wise comparison, students of Howrah district were more motivated (Mean=7.98, SD=1.99) and relatively less motivation was found in students of Hooghly district. Overall girls felt more motivation (Mean=6.97, SD=1.92) to attend school than boys (Mean=6.41, SD=2.18). Muslim students were more motivated (Mean=7.17, SD=2.12) to attend school than Hindu students (Mean= 6.58, SD=2.00).

Motivation to attend school is more complex. So only main effect can not be considered as sufficient to explain its variation. Therefore, interaction effects of more explanatory variables are to be examined. One major advantage for interaction study is to understand the effect of one variable when effect of other variable is controlled. In above, out of 6 variables, only 2 demographic (gender and religion) and 3 situational variables (Districts, literacy in blocks and availability of infrastructures in school) explained the variation. These 5 variables were taken into account for studying interaction effect.

School attendance motivation does not vary with SES, but with religion, availability of infrastructure and block level literacy

2.2 Interaction effects

Between demographic variables

Table 6.4 indicates significant interaction effect of gender and religion on school attendance motivation. Though gender has main effect in above analysis, it fails to explain the variance [$F(1,535) = 2.79$, NS] of school attendance motivation when effect of religion is controlled. But this does not happen in case of religion. Irrespective of gender wise difference, religion could explain the variance significantly [$F(1,535) = 10.71$, $p < 0.00$]. Figure 6.1 presents interaction effect more clearly. It is noted from Table 6.5 that girls of both religious groups have same level of motivation (Mean = 7.04, SD=1.93) where as motivation of Hindu boys differ. Muslim boys were more motivated (Mean=7.32, SD= 2.27) to attend the school than Hindu boys (Mean=6.12, SD=2.05) in a significant manner [$F(1,535)=9.36$, $p < 0.00$].

Between demographic and situational conditions

Gender

Table 6.7 shows no interaction effect [$F(1,564)=0.97$, NS] of block level literacy and gender. On the other hand Table 6.7 shows significant interaction effect [$F(1,159)=5.43$, $p < 0.02$] of school infrastructure and gender. Girls in good infrastructure schools felt more motivation than girls in poor infrastructure schools. Similar things happen in case of boys also.

Religion

Table 6.7 shows no significant interaction effect [$F(1,142)=2.07$, NS] of school infrastructure on school attendance motivation. On the other hand literacy in blocks

has significant interaction effect [$F(1,538)=23.56, p<0.00$] on school attendance motivation. Muslim students in more literate blocks (Mean= 8.13, SD=2.01) were more motivated than Muslim students of literate blocks (Mean=6.03, SD= 1.65). Though Hindu students in more literate blocks (Mean= 6.74, SD=2.24) were more motivated than same of less literate blocks (Mean=6.39, SD=1.67), their school attendance motivation are very near to each other.

Table 6.2
Reliability Coefficients of School Attendance Motivation Questionnaire (N=572)

Dimensions	Item no.	p	pq	SD2	r_{tt}
School Attendance Motivation	1	0.78	0.17		
	2	0.82	0.15		
	3	0.93	0.06		
	4	0.77	0.17		
	5	0.78	0.17		
	6	0.69	0.21		
	7	0.64	0.23		
	8	0.92	0.07		
	9	0.79	0.17		
	10	0.76	0.18		
Total		7.88	1.60	4.27	0.69

Table 6.3
Distribution of School Attendance Motivation (N=572)

Variables	Categories	N	Mean	SD	F	df	P-value
Gender	Girls	308	6.97	1.92	10.84	1,566	0.001
	Boys	260	6.41	2.18			
	Total	568	6.71	2.06			
Religion	Muslim	176	7.17	2.12	9.95	1,540	0.00
	Hindu	366	6.58	2.00			
	Total	542	6.77	2.06			
SES	Low	120	6.63	2.18	2.80	1,250	NS
	High	132	6.63	1.80			
	Total	252	6.63	1.98			
District	North 24 Pgs	73	7.93	2.06	31.73	5,566	0.00
	Howrah	131	7.98	1.99			
	Bankura	96	6.45	2.03			
	Maldah	115	6.25	2.04			
	South 24 Pgs	53	5.72	1.12			
	Hoogly	104	5.59	1.22			
	Total	572	6.72	2.07			
Blocks	Low in Literacy	268	6.24	1.67	29.64	1,570	0.00
	High in Literacy	304	7.15	2.28			
	Total	572	6.72	2.07			
School	Good Infrastructures	85	7.74	2.42	36.54	1,161	0.00
	Poor infrastructures	78	5.99	1.94			
	Total	163	6.90	2.20			

Table 6.4
Interaction Effect of Gender and Religion on School Attendance Motivation

	df Effect	MS Effect	df Error	MS Error	F	P-level
Gender (G)	1	11.24	535	4.02	2.79	0.10
Religion (R)	1	43.07	535	4.02	10.71	0.00
G X R	1	37.67	535	4.02	9.36	0.00

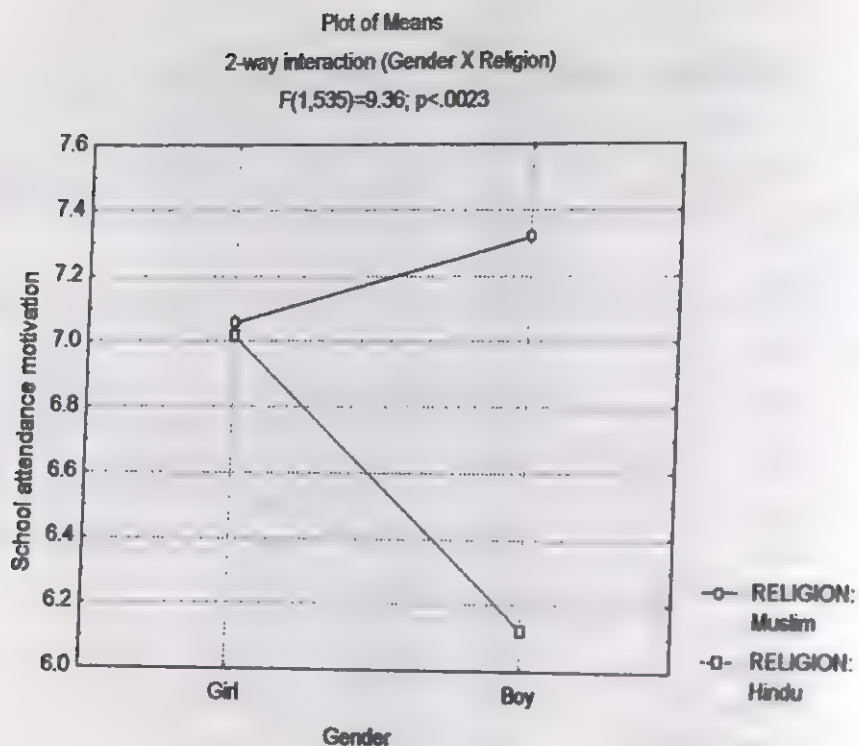


Figure 6.1 Interaction Effect of Gender and Religion on School Attendance Motivation

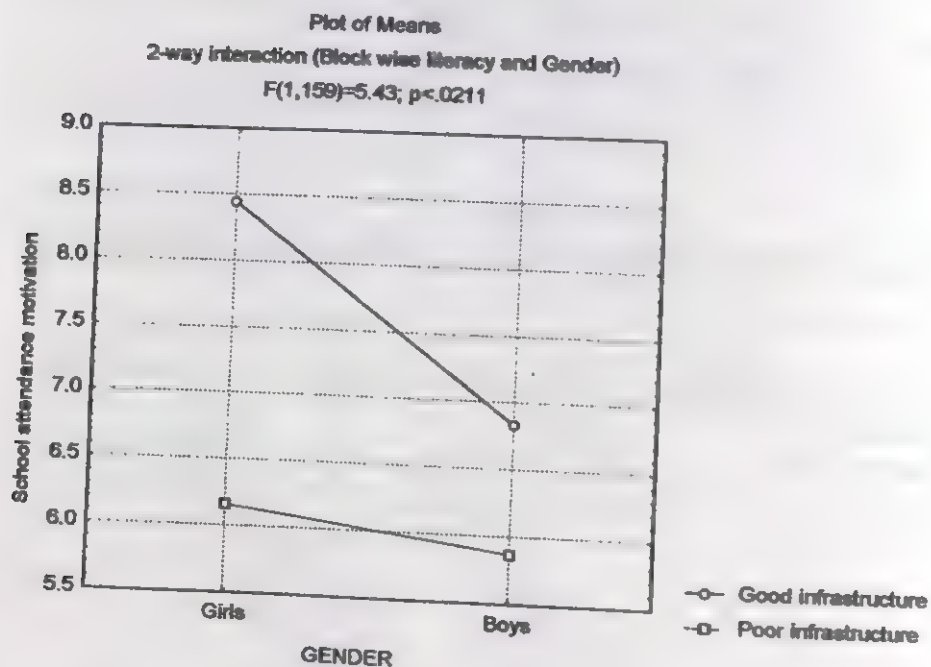


Figure 6.2 Interaction between Block wise Literacy and Gender

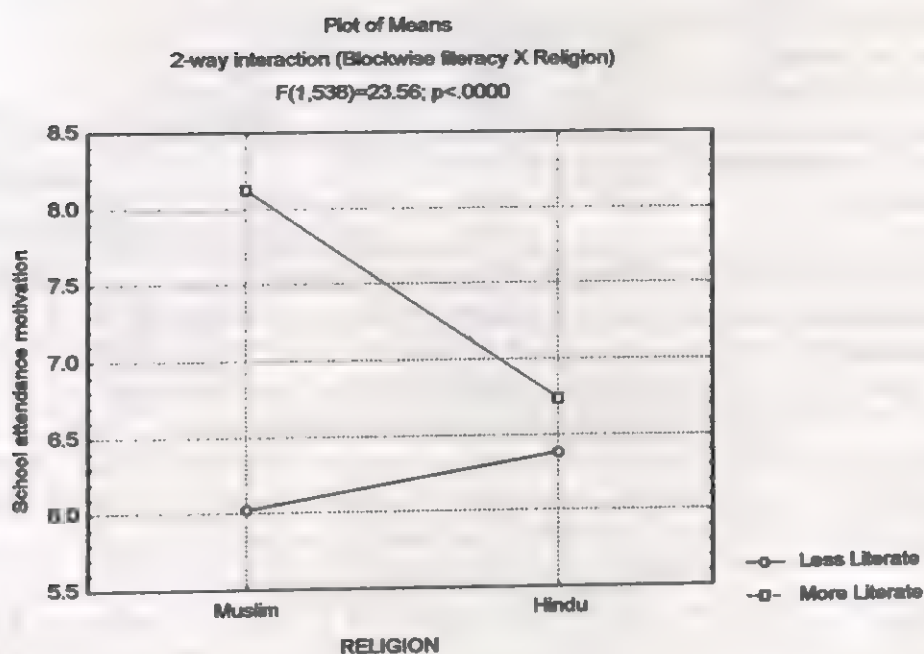


Figure 6.3 Interaction between Block wise Literacy and Religion

Table 6.5
Descriptive Statistics by Gender and Religion, School Infrastructure facilities and Gender on School Attendance Motivation

Gender	Religion	N	Mean	SD
Girls	Muslim	107	7.06	2.00
	Hindu	187	7.02	1.86
Boys	Muslim	66	7.32	2.27
	Hindu	179	6.12	2.05
Total		539	6.76	2.05
Infrastructure Gender				
Good	Girl	48	8.44	1.76
	Boy	37	6.84	2.15
Poor	Girl	31	6.16	1.57
	Boy	47	5.87	1.54
Total		163	6.90	2.04

Table 6.6
Interaction Effect of School Infrastructure and Gender on School Attendance Motivation

School infrastructure and gender						
	df Effect	MS Effect	df Error	MS Error	F	p-level
School infrastructure (S)	1	103.64	159	3.12	33.21	0.00
Gender (G)	1	35.18	159	3.12	11.27	0.00
S X G	1	16.94	159	3.12	5.43	0.02
Block level literacy and gender						
Literacy (L)	1	112.08	564	3.97	28.22	0.00
Gender (G)	1	43.29	564	3.97	10.90	0.00
L X G	1	3.85	564	3.97	0.97	0.33
School infrastructure and religion						
School (S)	1	60.22	142	3.53	17.04	0.00
Religion (R)	1	0.43	142	3.53	0.12	0.73
S X R	1	7.30	142	3.53	2.07	0.15
Block level literacy and religion						
Literate Block (L)	1	177.50	538	3.81	46.58	0.00
Religion (R)	1	30.92	538	3.81	8.11	0.00
L X R	1	89.77	538	3.81	23.56	0.00

Table 6.7
Descriptive Statistics of School Attendance Motivation
by Literacy and Religion

Blocks	Religion	N	Mean	SD
Less Literate	Muslim	80	6.03	1.65
	Hindu	166	6.39	1.67
More Literate	Muslim	96	8.13	2.01
	Hindu	200	6.74	2.24
Total		542	6.77	2.06

7

Academic Achievement Of Student

The test has good content and predictive validity

They were good in attaining introduction and drawing but their attainment is poor in arithmetic and language.

Like school attendance motivation, academic achievement is the predicted variable in this study. It is assessed by academic achievement test. Methodology followed in test development is discussed in Section 1. Section 2 discusses distribution of scores varying in demographic factors as well as school infrastructure availability.

Section – 1

7.1 Test Development:

After reviewing textbooks and question papers of different schools, one academic achievement test was prepared. It has 4 subtests (introduction, language, arithmetic, picture drawing) to assess attainment of followings: (a) Introducing self by student's name, name of school, class, and date of the test; (b) Memorizing 4 lines of any poem from textbook; (c) Arithmetic contains two problems; (d) Arranging numbers in order and adding; (e) Comprehending a problem and Subtracting; (f) Drawing a picture; Scoring categories of each of the subtests are given in Tables 7.1 and 7.2.

The test has good content and predictive validity. Content validity was tested (Table 7.3) by correlating each subtest score with total score (Average correlation coefficients = 0.68). Predictive validity of the test (Table 7.4) was determined by correlating it with school examination result of the students (Average correlation coefficients = 0.67). Scatter plot is given in Figure 7.1.

Section – 2

Table 7.5 shows different attainment levels of academic achievement. They were good in attaining introduction (81%) and drawing (68%) but their attainment is poor in arithmetic (59%) and language (66%). To move into further details, it is found that in introduction section 93.6% students were able to write their names properly. 79.1% students could write their schools names with proper spelling. But 74.8% students could report their respective classes rightly and only 65.9% students wrote the date of the work properly.

In language section, where the students were asked to write 4 lines of a poem, it was evident that the students scored 68% on an average (Mean Score=2.70, SD=1.27). Only 46.7% students could write the name of the poet correctly, with a correct spelling.

In mathematics, there were two problems - addition and subtraction. In addition, question is related to add 3 digits after arranging them in ascending order. It is observed that only 46.9% students could arrange the digits properly (Mean Score=0.47, SD=0.50) and only 44.8% students reached the appropriate answer

Academic achievement was affected by SES, Districts, Block level literacy, and School infrastructure facility only.

(Mean Score=0.45, SD=0.50). In case of subtraction, question is to subtract 2 digits after comprehending a textual problem. 69.2% students could comprehend the problem (Mean Score=0.69, SD=0.46) but only 52.4% students reached the correct answer (Mean Score=0.52, SD=0.50).

In drawing picture, most of the students (85.10%) had no anomalies (Mean Score=0.85, SD=0.35) in their picture. Most of them (84.40%) had no important parts missing (Mean Score=0.84, SD=0.36). Majority of the drawings (88.20%) were not complex (Mean Score=0.88, SD=0.32), were in harmony (89.60%) with its background (Mean Score=0.90, SD=0.31), orderly (72.30%) (Mean Score=0.72, SD=0.45) and the pictures were mostly (51.20%) vivid (Mean Score=0.51, SD=0.50). On the other hand, majority of the drawings (53.10%) were neither clean (Mean Score=0.53, SD=0.50) nor resembled higher aesthetic standards (17.10%) (Mean Score=0.17, SD=0.38).

7.2 Main Effects

Table 7.6 indicates no significant mean differences [$F(1,416) = 2.48$, NS], in achievement test score between Boy and Girl students as well as between Hindu and Muslim students [$F(1,397) = 0.15$, NS]. Rather it is affected by socio-economic status of students [$F(1,186) = 62.63$, $p < 0.00$], district wise locations [$F(4,417) = 7.45$, $p < 0.00$], block literacy level [$F(1,420) = 14.41$, $p < 0.00$], across 9 rural blocks [$F(8,413) = 8.25$, $p < 0.00$], school infrastructures facility [$F(1,132) = 9.9$, $p < 0.00$]. It is found that students belonging to high socioeconomic class achieved a high test score (Mean= 16.36, SD=3.05) than that of the low socioeconomic class students (Mean= 11.48, SD=5.19). Between the achievement scores of the different districts taken in the study, students of Bankura district secured the highest achievement score (Mean=15.69, SD=4.66) and students of Hooghly district scored lowest achievement score (Mean=12.83, SD=4.79). As expected, students belonging to high literate blocks possessed a higher achievement score (Mean= 14.86, SD=3.96) as compared to the low literate blocks (Mean=13.20, SD=4.87). Students belonging to schools with good infrastructures scored higher (Mean=15.45, SD=4.63) than their counterparts (Mean=12.75, SD=5.07).

7.3 Interaction Effects

Block Literacy X SES

Table 7.7 shows a significant interaction effect [$F(1,184) = 11.81$, $p < 0.00$] of block level literacy rate and socioeconomic status of the

Students of good infrastructure schools belonging to high socioeconomic status scored highest.,

students. .

It is found (Table 7.8) that the students of high literacy block belonging to high socioeconomic status scored highest (Mean = 16.60, SD=2.99) in the achievement test and the students of low literate blocks belonging to low socioeconomic status scored least (Mean = 8.82, SD=4.71) in the academic achievement test.

School Infrastructure Facilities X SES

Table 7.9 shows significant interaction effect [$F(1,57)=4.71$, $p<0.03$] of school infrastructure Facilities and socioeconomic status of students. The same is reflected in Fig. 7.2 also.

Students of good infrastructure schools belonging to high socioeconomic status scored highest (Mean = 18.08, SD=3.03) in the academic achievement test, while students of poor school infrastructure belonging to low socioeconomic status scored lowest (Mean = 7.00, SD=3.41) in the academic achievement test (Table 7.10).

Block Literacy X School Infrastructure Facilities

Table 7.11 shows that there is no significant interaction effect [$F(1,130)=0.08$, $p<0.77$] of block literacy rate and infrastructure facilities of schools. It is reflected in Figure 7.3 also.

SUMMARY

This chapter discusses distribution of academic performance and its determining variables. Academic performance was affected by SES, Districts, Block level literacy, and School infrastructure facilities. Next chapter will discuss academic performance as predicted variable.

Table 7.1
Scoring Categories of Introduction, Language and Arithmetic Subtests of Academic Achievement Test

Dimensions	Items	Wrong	Partially Correct	Correct	Total
Introduction	Student's Name	0	0.5	1	1
	School Name	0	0.5	1	1
	Class	0	0.5	1	1
	Date	0	0.5	1	1
	Total				4
Language	Poem (For each line) x 4 lines	0	0.5	1	4
	Name of Poet	0	0.5	1	1
	Total				5
Addition	Arrangement	0	0	1	1
	Sum	0	0	1	1
	Total				2
Subtraction	Problem Comprehension	0	0	1	1
	Result	0	0	1	1
	Total				2
Mathematics	Total				4

Table 7.2
Scoring Categories of Picture Drawing of Academic Achievement Test

Categories	Yes	No	Total
Missing	0	1	1
Anomalies	0	1	1
Vividness	0	1	1
Complexity	0	1	1
Harmony	0	1	1
Order	0	1	1
Cleanliness	0	1	1
Aesthetics	0	1	1
Total			8

Table 7.3

Subtest-total Score Correlation of Academic Achievement Test (N=302)

	Maximum Score	Minimum Score	Mean	SD	r
Introduction	4	0	3.28	1.08	0.60
Language	4	0	3.33	1.57	0.81
Addition	2	0	1.12	0.78	0.64
Subtraction	2	0	1.13	0.91	0.65
Mathematics	4	0	2.25	1.59	0.69
Picture	8	0	5.34	2.16	0.68
ACH	20	0	14.17	4.48	0.68

Note: All correlation coefficients are significant at 0.05 level

Table 7.4

Correlation between Academic Achievement Test and Academic Performance of Students in School Examination (N=302)

	1	2	3	4	5	6	7
1. Bengali Examination Result	1.00						
2. English Examination Result	0.58	1.00					
3. Maths Examination Result	0.84	0.62	1.00				
4. Total Examination Result	0.89	0.65	0.86	1.00			
5. Language Achievement Score	0.63	0.55	0.57	0.67	1.00		
6. Maths Achievement Score	0.56	0.27	0.45	0.56	0.59	1.00	
7. Total Achievement Score	0.65	0.51	0.57	0.67	0.83	0.76	1.00

Note: All correlation coefficients are significant at 0.05 level

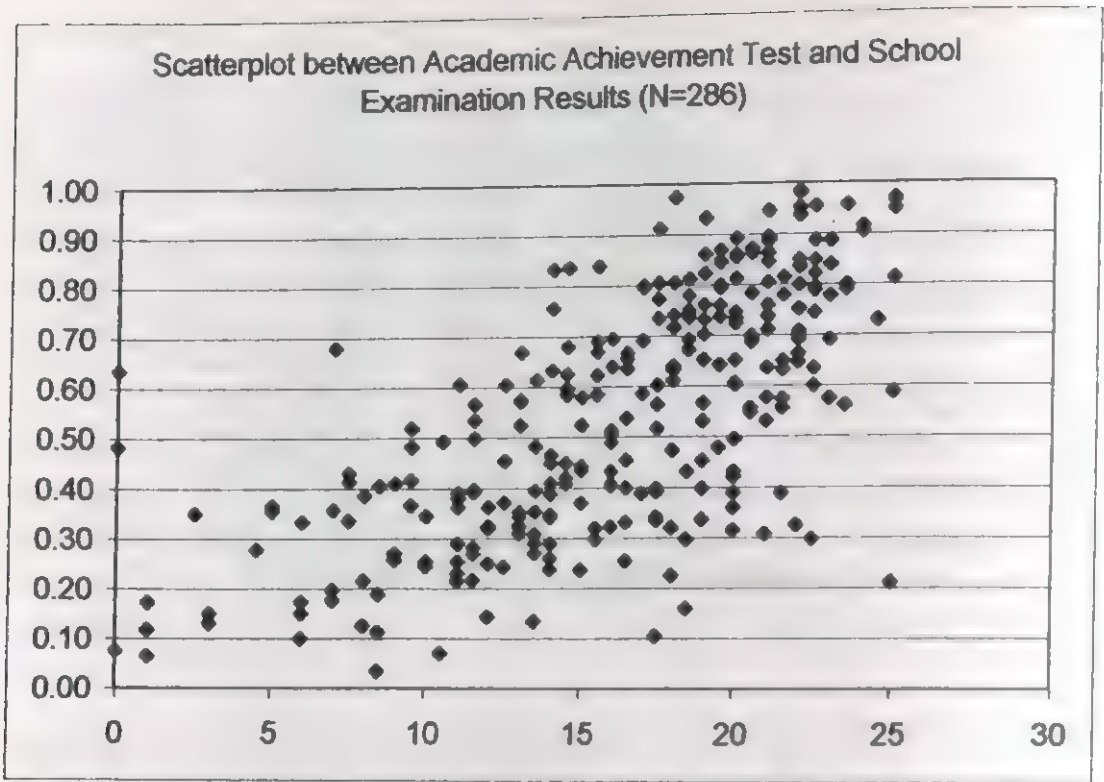


Figure 7.1 Scatter Plot of Academic Achievement Test and School Examination Results

Table 7.5

Dimension wise Academic Achievement Test Distribution

Dimensions	Items	Categories	n	%	Maximum Score	Mean	SD	Proportion
Introduction	Student's Name	Wrong	17	4.00				
		Partially Correct	10	2.40				
		Correct	395	93.60				
		Total	422		1.00	0.95	0.21	0.95
	School Name	Wrong	48	11.40				
		Partially Correct	40	9.50				
		Correct	334	79.10				
		Total	422		1.00	0.84	0.33	0.84
	Class	Wrong	80	19.00				
		Partially Correct	26	6.20				
		Correct	315	74.80				
		Total	421		1.00	0.78	0.40	0.78
	Date	Wrong	138	32.70				
		Partially Correct	6	1.40				
		Correct	278	65.90				
		Total	422		1.00	0.67	0.47	0.67
	Total		422		4.00	3.24	1.05	0.81
Language	Poem	0-1	74	17.60				
		1-2	58	13.80				
		2-3	97	23.00				
		3-4	193	45.70				
		Total	422		4.00	2.70	1.27	0.68
	Name of Poet	Wrong	133	31.50				
		Partially Correct	92	21.80				
		Correct	197	46.70				
		Total	422		1.00	0.58	0.44	0.58
	Total		422		5.00	3.28	1.57	0.66
Addition	Arrangement	Wrong	224	53.10				
		Right	198	46.90				
		Total	422		1.00	0.47	0.50	0.47
	Sum	Wrong	233	55.20				
		Right	189	44.80				
		Total	422		1.00	0.45	0.50	0.45
	Total		422		2.00	1.14	0.75	0.57
Subtraction	Problem Comprehension	Wrong	129	30.60				
		Right	292	69.20				
		Total	421		1.00	0.69	0.46	0.69
	Result	Wrong	201	47.60				
		Right	221	52.40				

Mathematics	Total	Total	442	1.00	0.52	0.50	0.52
		Total	442	2.00	1.22	0.88	0.61
		Total		4.00	2.36	1.53	0.59
		Total					
Picture Drawing	Missing	Yes	66 15.60				
		No	356 84.40				
		Total	422	1.00	0.84	0.36	0.84
	Anomalies	Yes	62 14.70				
		No	359 85.10				
		Total	421	1.00	0.85	0.35	0.85
	Vividness	Yes	205 48.60				
		No	216 51.20				
		Total	421	1.00	0.51	0.50	0.51
	Complexity	Yes	50 11.80				
		No	372 88.20				
		Total	422	1.00	0.88	0.32	0.88
	Harmony	Yes	44 10.40				
		No	378 89.60				
		Total	422	1.00	0.90	0.31	0.90
	Order	Yes	117 27.70				
		No	305 72.30				
		Total	442	1.00	0.72	0.45	0.72
	Cleanliness	Yes	196 46.40				
		No	224 53.10				
		Total	420	1.00	0.53	0.50	0.53
	Aesthetics	Yes	349 82.70				
		No	72 17.10				
		Total	441	1.00	0.17	0.38	0.17
	Total		442	8.00	5.41	2.07	0.68

Table 7.6

Mean Differences in Academic Achievement Test across Gender, Religion, SES, Districts, Literacy, Blocks and School Infrastructure Facilities (N=422)

Variables	Categories	N	Mean	SD	F	df	P-value
Gender	Girl	224	14.64	4.19	2.48	1, 416	0.12
	Boy	194	13.97	4.47			
	Total	418	14.33	4.33			
Religion	Muslim	110	14.49	3.42	0.15	1, 397	0.69
	Hindu	289	14.67	4.35			
	Total	399	14.62	4.11			
SES	Low	91	11.48	5.19	62.63	1, 186	0.00
	High	97	16.36	3.05			
	Total	188	13.99	4.87			
Districts	North 24 Pgn(s)	59	13.17	3.24	7.45	4, 417	0.00
	Howrah	131	14.65	3.75			
	Bankura	96	15.69	4.66			
	Maldah	32	15.33	4.46			
	Hooghly	104	12.83	4.79			
	Total	422	14.28	4.36			
Literacy	Low Literacy	147	13.20	4.87	14.41	1, 420	0.00
	High Literacy	275	14.86	3.96			
	Total	422	14.28	4.36			
Block	Amdanga	59	13.17	3.24	8.25	8, 413	0.00
	Uluberia-I	61	15.02	3.79			
	Shyampur-II	70	14.34	3.71			
	Gangajal Ghati	16	11.75	4.43			
	Jaypur	80	16.48	4.32			
	Kaliachak-I	12	13.83	6.14			
	Chanchol-II	20	16.23	2.91			
	Polba-Dadpur	58	11.55	5.13			
	Chanditala-I	46	14.45	3.82			
	Total	422	14.28	4.36			
School	Good Infrastructures	56	15.45	4.63	9.9	1,132	0.00
	Poor infrastructures	78	12.75	5.07			
	Total	134	13.88	5.05			

Table 7.7
Interaction Effect of Block Literacy Level and Socioeconomic Condition
on Academic Achievement Test

	df Effect	MS Effect	df Error	MS Error	F	P-level
Literacy (L)	1	302.74	184	15.47	19.56	0.00
S-E-S (S)	1	1241.86	184	15.47	80.25	0.00
L x S	1	182.74	184	15.47	11.81	0.00

Table 7.8
Descriptive Statistics by Block Literacy Level and Socioeconomic Condition
on Academic Achievement Test

Literacy Rate	S-E-S	N	Mean	SD
Low	Low	38	8.82	4.71
Low	High	41	16.02	3.12
High	Low	53	13.39	4.69
High	High	56	16.60	2.99
Total		188	13.99	4.87

Table 7.9
Interaction Effect of School Infrastructure Facilities and Socioeconomic Conditions
on Academic Achievement Test

	df Effect	MS Effect	df Error	MS Error	F	P-level
Infrastructure (I)	1	436.07	57	12.85	33.93	0.00
S-E-S (S)	1	419.04	57	12.85	32.61	0.00
I x S	1	60.51	57	12.85	4.71	0.03

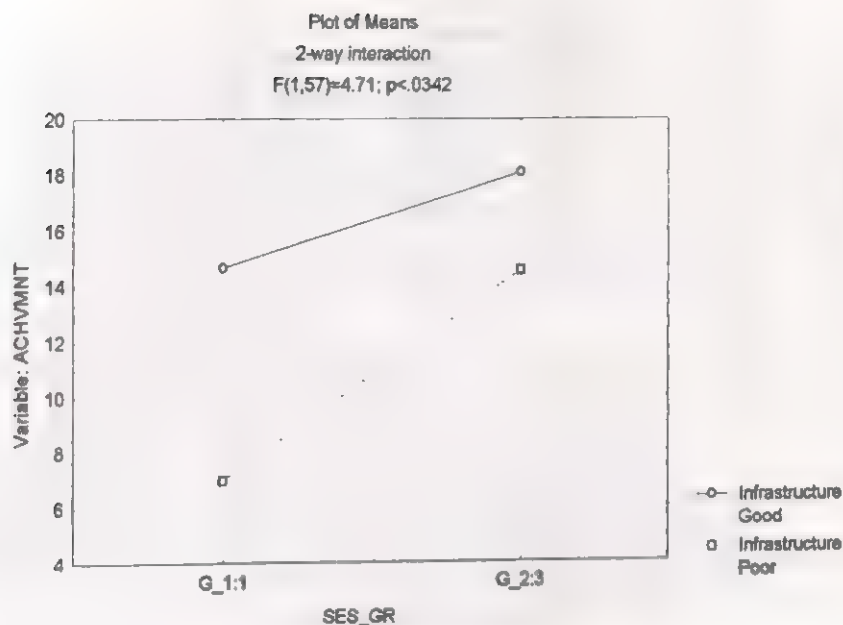


Figure 7.2 Interaction between School Infrastructure Facilities and Socioeconomic Status of Students

Table 7.10
Descriptive Statistics by School Infrastructure Facilities and Socioeconomic Conditions on Academic Achievement Test

Infrastructure	S-E-S	N	Mean	SD
Good	Low	11	14.68	4.83
Good	High	12	18.08	3.03
Poor	Low	24	7.00	3.41
Poor	High	14	14.57	3.16
Total		61	12.30	5.69

Table 7.11
Interaction Effect of Literacy in Blocks and School Infrastructure Group on Academic Achievement Test

	df Effect	MS Effect	df Error	MS Error	F	P-level
Infrastructure (I)	1	5.21	130	19.46	0.27	0.61
Literacy (L)	1	626.78	130	19.46	32.20	0.00
I x L	1	1.63	130	19.46	0.08	0.77

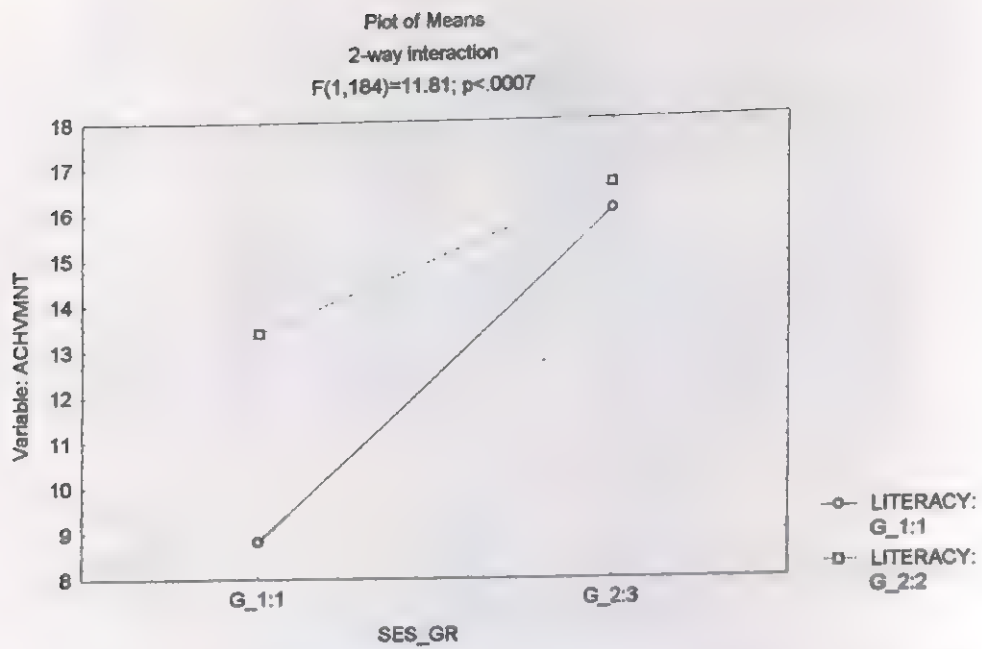


Figure 7.3 Interaction between Literacy in Blocks and Socioeconomic Status of Students

Motivation to attend school and Academic achievement are the predicted variables in this study. Predictions are discussed in successive sections – Section 1 is for prediction to school attendance motivation and the Section 2 is for prediction to academic achievement.

All attitudinal and motivation variables were interrelated (Table 8.1), therefore, stepwise regression (forward mode) was used. Table 8.2 shows that linear combination of 4 variables (Easiness, Willingness to Participate, Exploring, Safety) out of extracted 5, predict changes in school attendance motivation. In together, they accounted for 25% [$R^2=0.25$, $F(5,567)=37.80$, $p<.000$] variance of predicted variable. This suggests that students like infrastructures that can be controlled easily, safe and exploring. Their willingness to participate in different school programs motivates them to attend school. The above findings become much meaningful in Table 8.3. It indicates role of activity based infrastructure perception predicted [$\beta(569)=0.24$, $p<0.00$] more school attendance motivation when other variables were controlled.

Activity based infrastructure is composed of TLM, Games and Cultural programs. In correlating these 3 variables, it is noted that Games ($r(571)=0.33$, $p<0.00$) and Cultural programs ($r(571)=0.24$, $p<0.00$) are more significantly and positively related to school attendance motivation than perception of TLM ($r(571)=0.09$, 0.03).

Basic infrastructure is composed of perception to classroom, blackboard, teaching, text book and mid-day meal. These 5 variables in together accounted for 23% variance [$R^2=0.23$, $F(5,567)=33.74$, $p<.000$]. Mid-day meal [$\beta(567)=0.28$, $p<0.00$], text book [$\beta(567)=0.15$, $p<0.00$] and teaching [$\beta(567)=0.16$, $p<0.00$] predicted independently school attendance motivation. (Table 8.4).

Supportive infrastructure is composed of perception to Drinking water, Toilet, Friend, Book bank, and Health checkup facilities. Out of 5 infrastructures, perception to friend [$\beta(567)=0.19$, $p<0.00$], health checkup [$\beta(567)=0.16$, $p<0.00$], and toilet facilities [$\beta(567)=0.16$, $p<0.00$], predicted independently school attendance motivation (Table 8.5). Book bank and drinking water facilities can not predict school attendance motivation.

Relation with other demographic variables

Demography wise relationship between attitude towards school infrastructure and school attendance motivation did not vary much (Table 8.6). No significant differences were found in case of gender and literacy in blocks. Muslim students who perceived school infrastructure as more exploring and easy felt more motivation to attend school than Hindu students having similar perception. Students studying in schools with good infrastructures and who perceived school infrastructure as

8

Prediction

Students like infrastructures that can be controlled easily, that are safe and exploring. Willingness to participate in different school programs motivate them to attend school.

Mid-day meal, text book and teaching satisfaction predicted independently school attendance motivation.

clean and able to develop willingness to participate felt more school attendance motivation than their counterparts.

Gender

Linear combination of Easiness, Willingness to participate, Exploring predicted school attendance motivation in girls but in case of boys, linear combination of Easiness, Willingness to participate, Exploring, Safety, Comfort, Reliability predicted school attendance motivation. (Table 8.7)

Religion

Linear combination of Easiness, Exploring predicted school attendance motivation in Muslims but in case of Hindus, linear combination of Easiness, Willingness to participate, Safety, Exploring predicted school attendance motivation. (Table 8.8)

Literacy in Blocks

Linear combination of Easiness, Safety, Exploring, Comfort, Adequacy, Cleanliness predicted school attendance motivation in Less Literate Blocks but in case of More Literate Blocks, linear combination of Easiness, Willingness to participate, Cleanliness, Exploring, Adequacy predicted school attendance motivation. (Table 8.9)

Infrastructure Facility

Willingness to Participate, Safety, Reliability predicted school attendance motivation in Poor Infrastructure schools but in case of good infrastructure schools, linear combination of Easiness, Willingness to Participate predicted school attendance motivation. (Table 8.10)

Predicting Academic achievement: Table 8.11 shows that out of 9 variables, only 2 variables (comfort and reliability) were significantly correlated with academic achievement.

In another study, it was noted that school attendance motivation was not related to academic achievement test scores [$r(422)=0.02$, NS].

SUMMARY

This chapter discusses predictability of attitude towards school infrastructure in predicting school attendance motivation and academic performance of students. Linear combination of predicting attitudinal variables interact with Gender, Religion, block wise literacy and school infrastructure availability.

Muslim students who perceived school infrastructure as more exploring and easy felt more motivation to attend school

Out of 9 variables, only 2 variables (comfort and reliability) were significantly correlated with academic achievement.

School attendance motivation was not related to academic achievement

Table 8.1
Correlation Matrix of Motivation to Attend School and
Attitudes towards School Infrastructure (N=572)

	Mean	SD	1	2	3	4	5	6	7	8	9	10
1. Motivation	7.79	2.06	1.00									
2. Cleanliness	0.70	0.26	0.24**	1.00								
3. Safety	0.65	0.26	0.32**	0.53**	1.00							
4. Comfort	0.73	0.21	0.20**	0.44**	0.52**	1.00						
5. Adequacy	0.77	0.13	0.27**	0.33**	0.42**	0.37**	1.00					
6. Exploring	0.76	0.14	0.26**	0.12	0.06	0.08	0.31**	1.00				
7. Reliability	0.75	0.21	0.22**	0.28	0.35**	0.35**	0.35**	0.27**	1.00			
8. Easiness	0.83	0.19	0.43**	0.34	0.47**	0.41**	0.47**	0.25**	0.44**	1.00		
9. Equal opportunity	0.66	0.27	0.11**	0.14	-0.03	0.07	0.29**	0.41**	0.28**	0.13**	1.00	
10. Willingness to participate	0.69	0.17	0.31**	0.38	0.39**	0.36**	0.35**	0.19**	0.29**	0.27**	0.20**	1.00

****p<0.01**

Table 8.2
Stepwise Regression Analysis of Attitude towards School Infrastructure in Predicting
Motivation to Attend School (N=572)

	Step +in/- out	Multiple R	Multiple square R- square	R- square change	F – to entr/rem	P- level	Variables Included
Easiness	1	0.43	0.18	0.18	126.17	0.00	1
Willingness to Participate	2	0.47	0.22	0.04	30.07	0.00	2
Exploring	3	0.49	0.24	0.02	12.64	0.00	3
Safety	4	0.50	0.25	0.01	5.99	0.01	4
Comfort	5	0.50	0.25	0.00	2.37	0.12	5

Table 8.3
Standardized Partial Regression Analysis of Perception of School Infrastructure in Predicting Motivation to Attend School (N=572)

	R	Beta	t(569)	P-level
Basic Infrastructure	0.23	0.15	3.52	0.00
Supportive infrastructure	0.21	0.12	2.93	0.00
Activity based infrastructure	0.28	0.24	6.06	0.00

Table 8.4
Standardized Partial Regression Analysis of Perception of Supportive School Infrastructure in Predicting Motivation to Attend School (N=572)

	R	Beta	St. Err. of B	t (567)	P-level
Classroom	0.22	0.05	0.06	1.17	0.24
Blackboard	0.25	0.03	0.10	0.59	0.56
Teaching	0.33	0.16	0.07	3.73	0.00
Book	0.34	0.15	0.11	3.47	0.00
Mid-Day Meal	0.38	0.28	0.07	7.03	0.00

Table 8.5
Standardized Partial Regression Analysis of Perception of Basic School Infrastructure in Predicting Motivation to Attend School (N=572)

	R	Beta	St. Err. of Beta	B	St. Err. of B	t(567)	P-level
Friend	0.24**	0.19	0.04	0.36	0.09	4.28	0.00
Health	0.24**	0.16	0.04	0.16	0.04	3.87	0.00
Toilet	0.21**	0.16	0.05	0.29	0.09	3.08	0.00
Book bank	0.00	-0.07	0.04	-0.10	0.06	-1.64	0.10
Drinking Water	0.09*	-0.08	0.05	-0.14	0.09	-1.60	0.11

* p<0.05, **p<0.01

Table 8.6
Significant Differences in Correlation Coefficients of Attitude towards School Infrastructures and School Attendance Motivation by Gender, Religion, Literacy and Infrastructure Facilities

	Gender			Religion			Literacy			Infrastructure Facilities		
	Girl	Boy	CR	Muslim	Hindu	CR	Less	More	CR	Good	Poor	CR
N	308	260		176	366		268	304		85	78	
Cleanliness	0.23	0.24	0.13	0.33	0.19	1.67	0.18	0.29	1.5	0.37	0.07	-2
Safety	0.31	0.35	0.63	0.27	0.32	0.56	0.37	0.26	-1.5	0.51	0.3	-1.6
Comfort	0.24	0.14	-1.25	0.14	0.21	0.78	0.13	0.24	1.38	0.44	0.19	-1.8
Adequacy	0.29	0.25	-0.5	0.34	0.24	1.22	0.31	0.24	-1	0.24	0.33	0.6
Exploring	0.26	0.26	0	0.39	0.23	-2	0.21	0.28	1	0.08	0.15	0.4
Reliability	0.25	0.19	-0.88	0.16	0.24	0.89	0.19	0.24	0.63	0.3	0.17	-0.9
Easiness	0.43	0.44	0.12	0.47	0.39	-2	0.42	0.42	0	0.42	0.47	0.4
Equal opportunity	0.12	0.1	-0.25	0.07	0.16	1	0.03	0.16	1.63	0.18	-0.2	0.1
Willingness to participate	0.3	0.31	0.13	0.28	0.29	0.11	0.19	0.37	2.5	0.57	0.28	-2.3

CR: Critical Ratio

Table 8.7
Stepwise Regression Analysis of Attitude towards School Infrastructure in Predicting
Motivation to Attend School by Gender

	Step +in/- out	Multiple R	Multiple R-square	R-square Change	F - to entr/rem	P- level	Variabls included
Girls (N=308)							
Easiness	1	0.43	0.18	0.18	68.01	0	1
Willingness to participate	2	0.46	0.21	0.03	10.55	0	2
Exploring	3	0.48	0.23	0.02	6.66	0.01	3
Safety	4	0.48	0.23	0.01	3.04	0.08	4
Boys (N=260)							
Easiness	1	0.44	0.2	0.2	63.11	0	1
Willingness to participate	2	0.5	0.25	0.05	18.25	0	2
Exploring	3	0.52	0.27	0.02	6.16	0.01	3
Safety	4	0.53	0.28	0.01	3.52	0.06	4
Comfort	5	0.54	0.3	0.02	7.01	0.01	5
Reliability	6	0.55	0.3	0	1.08	0.3	6

Table 8.8
Stepwise Regression Analysis of Attitude towards School Infrastructure in Predicting
Motivation to Attend School by Religion

		Step +in/- out	Multiple R	Multiple R-square	Multiple R-square change	R-square F – to entr/rem	P- level	Variables included
Muslim	Easiness	1	0.47	0.22	0.22	49.17	0.00	1
	Exploring	2	0.52	0.27	0.05	11.91	0.00	2
	Equal opportunity	3	0.53	0.28	0.01	2.99	0.09	3
	Willingness to participate	4	0.54	0.3	0.01	3.1	0.08	4
	Comfort	5	0.55	0.31	0.01	2.61	0.11	5
	Cleanliness	6	0.56	0.32	0.01	2.12	0.15	6
	Reliability	7	0.57	0.32	0.01	1.58	0.21	7
Hindu	Easiness	1	0.39	0.16	0.16	67.18	0.00	1
	Willingness to participate	2	0.44	0.2	0.04	18.18	0.00	2
	Safety	3	0.46	0.21	0.01	6.3	0.01	3
	Exploring	4	0.48	0.23	0.02	8.25	0.00	4

Table 8.9
Stepwise Regression Analysis by Attitude towards School Infrastructure in Predicting
Motivation to Attend School by Literacy in Blocks

Literacy		Step +in/- out	Multiple R	Multiple R-square	Multiple R-square change	F – to entr/rem	P- level
Less	Easiness	1	0.42	0.18	0.18	58.46	0.00
	Safety	2	0.46	0.21	0.03	11.21	0.00
	Exploring	3	0.50	0.25	0.04	12.70	0.00
	Comfort	4	0.51	0.26	0.01	4.63	0.03
	Adequacy	5	0.53	0.28	0.02	6.23	0.01
	Willingness to participate	6	0.54	0.29	0.01	3.30	0.07
	Cleanliness	7	0.55	0.30	0.01	4.53	0.03
More	Easiness	1	0.42	0.18	0.18	64.87	0.00
	Willingness to participate	2	0.48	0.23	0.05	21.13	0.00
	Cleanliness	3	0.49	0.24	0.01	4.14	0.04
	Exploring	4	0.50	0.25	0.01	2.71	0.10
	Adequacy	5	0.51	0.26	0.01	3.94	0.05

Table 8.10
Stepwise Regression Analysis by Attitude towards School Infrastructure in Predicting
Motivation to Attend School by School Infrastructure Adequacy

	Step +in/-out	Multiple R	Multiple R-square	R-square change	F - to entr/rem	P-level
Poor Infrastructure (n=85)						
Willingness to participate	1	0.57	0.33	0.33	40.78	0.00
Safety	2	0.65	0.42	0.09	13.34	0.00
Reliability	3	0.67	0.45	0.03	3.99	0.05
Easiness	4	0.68	0.46	0.01	1.88	0.17
Cleanliness	5	0.69	0.47	0.01	1.18	0.28
Good Infrastructure (n=78)						
Easiness	1	0.47	0.22	0.22	21.57	0.00
Willingness to participate	2	0.52	0.27	0.05	5.06	0.03
Equal opportunity	3	0.54	0.29	0.02	2.16	0.15
Adequacy	4	0.56	0.31	0.02	1.93	0.17
Exploring	5	0.56	0.32	0.01	1.01	0.32

Table 8.11
Correlation between Attitude towards School Infrastructure and Academic Achievement
(n=422)

Attitudinal Dimension	r
Cleaning	0.03
Safety	0.07
Comfort	0.10
Adequacy	0.01
Exploring	0.06
Reliability	0.11
Easiness	0.05
Equal opportunity	0.04
Willingness to participate	0.07

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SCHOOL REPORT CARD

Date:

Respondent's Name:

Name:		Village:		Block:		District:	
Year of Establishment:		School Area:		Mission:			
Medium:		Distance from Main Road: Market: Block office:			School Type : Govt. aided/Private/others		
Water Source:		River	Pond	Canal	Well	Tube well	Tap water
Number of Students:		All:	Class IV:	Class V:			
Teacher's Qualification (by no)		School Final:	HS:	Graduate:	Post-Graduate:	B.Ed. /M.Ed.:	Total Teachers:
Para teachers							
Number of Classroom:		Number of Section:	Kuchcha	Pucca	Total	Observation	
All							
Number of Open Toilet:		Number of Sweeper:		Electricity		Own Meter	Rented
Number of Shaded Toilet:				Mid day Mill		Regular	Irregular
Toilet For Girls only:				Health Checkup		Regular	Irregular
Common Toilet:				Computer Available for student		Yes	No
Fans in Classroom in Average:				Computer Available for Official Purpose		Yes	No
Lights in Classroom in Average:				Books Available in Book-bank:		Number of Librarian.	
Tables in Classroom in Average:				Text Books:			
Chair/Benches in Classroom in Average:				Text Books & Story Books:			
Number of Doors in Classroom in Average:				Reference Books:			
Number of Windows in Classroom in Average:				Playground Available		Own	Rented
Number of Examinations held every Year:				Playing Materials:		Adequate	Inadequate
Number of vacations held every year:				Use of Teaching Learning Material		Yes	No
Blackboard Size:				Flash Card			
Garden:		Number of Gardener:		Work Card			
Fees:				Pocket Board			
Guardian Meeting Held in School	Nil	Regular	Irregular	Chart			
Exhibitions held in School	Nil	Yearly	Irregular	Model			
Cultural Programmes held in School	Nil	Regular	Irregular	Map			
Magazines Published by School	Nil	Regular	Irregular	Any Destruction caused by natural Calamity			
Sports held in School	Nil	Yearly	Irregular	School Transport Av.		Yes	No
Games Accessories	NA	Av.	Easily Av.	Picnics /Excursions held every Year		Regular	Irregular
Any Renovation in Last Few Years		Building	Computer	Syllabus		Study materials	Class Acc
School Performance (last exam)							
Class 5	(10-30)%	(30-50)%	(50-70)%	(70-90)%	90 & Above		
Class 4	(10-30)%	(30-50)%	(50-70)%	(70-90)%	90 & Above		

Socioeconomic Status Questionnaire

1. School Name:
2. Name: (Sri. / Smt.):
3. Class:
4. Age:
5. Caste: i) S.T ii) S.C iii) O.B.C iv) General
6. Religion: i) Buddhist ii) Muslim iii) Christian iv) Hindu
7. Distance between home and school: i) Less than 1 Km ii) 1-2 Km iii) 2-3 Km
iv) More than 3 Km
8. Mode of communication for going to school: i) Walking ii) Cycle iii) Rickshaw
iv) School bus v) Others
9. Study guide at home: i) Study independently ii) Father iii) Mother iv) Tutor v)
Others
10. Difficulty in seeing letters while reading: i) yes ii) No
11. Frequency of food-taking each day: i) Once ii) Twice iii) Thrice iv) Four times
v) More than four times
12. Family type: i) Nuclear ii) Joint
13. Number of family member: i) 2-3 ii) 4-5 iii) 6-7 iv) More than 7
14. Family Occupation: i) Landless farmer ii) Marginal farmer iii) Farmer iv)
Labourer v) Business vi) Service
15. Ownership of farming land: i) Yes ii) No
16. Roof type at home: i) Hey ii) Bamboo iii) Taali iv) Asbestos v) Brick vi)
Others
17. Wall type at home: i) Clay ii) Bamboo iii) Asbestos iv) Brick v) Others
18. Source of drinking water at home: i) River ii) Pond iii) Well iv) Tube-well v)
Road side Tap Water vi) Tap Water at Home

19. Type of illumination at home: i) No illumination ii) Kerosene iii) Lok-Deep iv) Rented Electricity v) Electricity-Own meter
20. Toilet Habit: i) Field ii) Unscientific toilet iii) Scientific toilet (Without flush) iv) Unscientific toilet (With Flush)
21. Garbage Cleaning: i) Beside home ii) Field iii) Beside Road iv) Garbage pit
22. Number of rooms at home:
23. Which of the following you have at your home: i) Cooker ii) Cycle iii) Television iv) Motor cycle v) Telephone vi) All of the above
24. Monthly family income: i) Less than Rs. 500 ii) Rs. 500-1000 iii) Rs. 1000-1500 iv) Rs. 1500-2000

Attitude toward School Infrastructure Questionnaire

A. Classroom

1. Does your classroom get cleaned sufficiently every day?
2. Can you sit in your classroom comfortably?
3. Do you face difficulty to study in your classrooms during rainy seasons?
4. Do you find enough space to relax (keep) your hands in classroom during writing?
5. Do you think there is adequate light in your classroom?
6. Can you see your teacher's face from your sit in classroom when s/he teaches lessons to you?
7. Do you think that there is any possibility to get electrified in classroom?
8. Are the classrooms adequately airy?

B. Drinking Water

1. Do you think that the drinking water is sufficiently clean in school?
2. Do you have the fear of falling ill after drinking water from school?
3. Do you think you get adequate water from your school?
4. Do you ever find a bad smell in the drinking water in school?

C. Toilet

1. Do you think that toilets in your school are not that clean?
2. Do you think the toilet floors are that slippery to meet an accident with?
3. Do you think that you can maintain enough privacy in school toilet?
4. Do you feel that the school toilets are spacious?

D. Blackboard

1. Can you see the letters clearly when your teacher writes on blackboard?
2. Do you feel pain in neck while looking at blackboard for a long time?
3. Do you think the size of blackboard in your classroom is sufficiently big?
4. Do you think there is any danger of meeting with an accident by falling of blackboard to ground level?

E. Teaching

1. Do feel like asking questions to your teacher while s/he teaches in class?
2. Do you find your teachers trustworthy to talk about the inconveniences that you face in your school?
3. Do you need to take private tuition at home to complete the school syllabus?
4. Do you feel free to ask questions If you don't understand the lectures in class?
5. Do you face difficulty in taking notes in class?
6. Do you feel scared to reply to your teacher's questions in class?

F. Book

1. Do you get enough textbooks from your school?
2. Do the lessons that you take in your classes help you to solve problems of everyday life?
3. Do you find discrepancies between the text book lessons and teacher's lecture in class at times?
4. Do you find it difficult to see the letters of the books?

G. Teaching-Learning Material

1. Do you like to read using pictures and charts?
2. Do you think the pictures in your textbooks actually help you to understand the texts more correctly?
3. Do the pictures in textbooks make it easy to understand the meanings of the texts?
4. Do you try to understand the texts in classroom through modeling?
5. Do you feel bad to make models while reading the texts in classroom?
6. Do you understand the texts more easily through modeling?
7. Do you get enough materials for modeling from your school?
8. Do you feel that you are wasting time if you make models while reading texts in class?

H. Friend

1. Do you discuss about the classroom lessons with your friends?

2. Can you trust your friends and tell them everything that you have in your mind?
3. Do you feel good when you meet your friends at school?
4. Do you often find your personal belongings missing from classroom?
5. Do you feel lonely in your classroom?

I. Games

1. Can all the students of your school participate in school games equally?
2. Do you feel like participating in school games?
3. Do you feel encouraged to do more physical exercises by the games that you play in your school?
4. Do you think the games that you play in school make you physically stronger to take heavy workloads?
5. Do all the students of your class get the play materials equally?
6. Do you feel energetic to participate in school games?

J. Cultural Programme

1. Do you learn a lot from the cultural programmes of your school?
2. Do all the students of your class get opportunity to participate in cultural programmes of school?
3. Do you feel blue if you cannot participate in the cultural programmes of school?
4. Do you feel enthusiastic to participate in cultural programme of school?
5. Do you discover your artistic abilities by participating in school cultural programmes?

K. Library

1. Do you like reading books from school library?
2. Do each students of your class get library books equally?
3. Do the books from library indulge novel thinking in you?

L. Mid-Day Meal

1. Does mid-day meal of your school tastes dull?

2. Do all the students of your school get mid-day meal equally?
3. Do you feel the fear of falling ill by having the foods of mid-day meal?
4. Do you feel like taking mid-day meal for home?
5. Do you feel the amount of mid-day meal is sufficient for your appetite?

M. Health Check-Up

1. Do you feel that the arrangement of health check-up is unnecessary in school?
2. Do you think the health check-up is done with proper care?
3. Do you ever fall ill after you go through a health check-up in school?
4. Do you enjoy health check-up in your school?
5. Do you feel like obeying the prescriptions of the doctors after health check-up is done?
6. Do you think that the apparatus used in health check-up are not clean?

School Attendance Motivation Questionnaire

1. Do you feel depressed if you cannot come to school?
2. Do you like staying at home rather than going to school?
3. Do you like more to read in school than at home?
4. Do you feel elated if after reaching school you come to know that the classes will be dissolved that day?
5. Do you feel bad if school remains closed most of the day?
6. Do you hesitate to decide whether you'll go to school or not on a particular day?
7. Do you feel at times that it would have been nice if it rained heavily and a rainy day is declared?
8. Do you like coming to school?
9. Do you feel blue if you find that you don't have to go to school on a particular day?
10. Do you feel like avoiding school and going to somewhere else?

Achievement Test

Name:

School Name:

Class:

Date:

1. Write any 4 lines of a memorized Bengali Poem. Write the name of the poem and the name of the poet.
2. Arrange the given numbers in ascending order and find the sum.
 $5995 + 69 + 786$
3. Suppose you have bought 86 mangoes from the market. On your way back home the carry bag fall on road. Back home you found that 38 mangoes are not in good condition. Now how many mangoes are there in good shape?
4. Draw a picture according to your own choice and write four sentences to describe it.

নাম- বৈষ্ণবী আম্র ✓ ①
 জেলা- চব্বিশ ✓ ①
 তারিখ- ৫.১২.০৬ ✓ ①
সংস্কৃত দ্বারা ✓ ①

৩/ বেশন দেহেতে তুলসী
 সকল দেহের চাইতে জ্যামল
 বেশন দেহেতে চলতে ছায়ে ✓ ④
 দলতে হয় এর দ্বারা বেশন

৪/
$$\begin{array}{r} 32 \\ + 986 \\ \hline 1018 \end{array} \quad \checkmark \text{ ②}$$

৫/
$$\begin{array}{r} 73 \\ - 38 \\ \hline 35 \end{array} \quad \checkmark \text{ ②}$$

∴ ৩৫৪৮টি আম্র ওলা আম্র



Government of West Bengal
School Education Department
(Primary Branch)
Bikash Bhavan, Salt Lake City, Kolkata - 700 091

No. 469/JS-II/ES/P/4P-11/2006

Dated 11.07.2007

From : Shri Sukumar Mahapatra
✓ Jt. Secy. to the Govt. of West Bengal

To : Sri Debdulal Dutta Roy
Lecturer, Psychology Research Unit,
Indian Statistical Institute,
203, B.T. Road, Kolkata - 700 108.

Sub : Permission & Support in collection of
data from different districts of West
Bengal 'Attitude towards School infras-
tructure in Rural Areas'.

Sir,

The School Education Department has no objection in the matter
of collection of data of sample schools from different districts of
West Bengal in your project founded by ISI, Kolkata.

We are also requesting our District Inspector of Schools/
Chairman DPSC in extending all possible help in this regard.

A copy of the report may please be presented to the Department
when it is published.

Yours faithfully,

Sd/- S. Mahapatra
Joint Secretary

Dated 11.07.2007

No. 469/JS-II/ES/P/

Copy forwarded for information and necessary action to :-

- 1) Prof. Sankar Kr. Pal, Director, ISI, 203, Barrackpore Trunk,
Kolkata - 700 108.
- 2) District Inspector of Schools (Pry)/(SE) -----District.
- 3) Chairman _____ DPSC, _____ District.

S. Mahapatra
Joint Secretary